

Final Examinations 2019



1 Cairo Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. Acceleration is considered one of .... physical quantities, while time is considered one of .... physical quantities.
2. The solar system is located in one the .... arms of the Milky Way on the edge of the galaxy.
3. Somatic cells are divided by ...., while reproductive cells are divided by ....

B What is meant by the following :

1. The optical centre of the lens. 2. Irregular speed. 3. Fertilization.

C A car starts to move from rest in straight line, its speed reaches 12 m/sec. after 4 sec. Calculate the acceleration of the car, and what is the type of this acceleration.

Question 2

A Choose the correct answer :

1. Yeast fungus reproduces asexually by ....
   a. regeneration. b. binary fission. c. budding. d. spore.
2. The solar system consists of the Sun and .... planets revolve around it.
   a. 7 b. 8 c. 9 d. 10
3. The image formed by .... is always virtual, erect and small.
   a. convex lens b. concave mirror
   c. plane mirror d. convex mirror and concave lens
4. The speed of a moving object relative to the observer is considered as .... speed.
   a. regular b. average c. vector d. relative
5. If an object at a distance of 3 metres from a plane mirror. The distance between that object and its image is .... metre.
   a. 3 b. 6 c. 9 d. 12

B Explain by drawing :

The formed image by convex lens, when the body at a distance greater than double the focal length. Then write the properties of the formed image.





C Give reasons for the following :

1. Some persons have short-sightedness.
2. Asexual reproduction in living organisms produces individuals identical in genetic structure to those of their parent.

Question 3

A Re-write the following statements after correcting the underlined words :

1. The chromosomes chemically consists of nuclear acid called (DNA) and **fats**.
2. If the radius of curvature of a concave mirror equals 20 cm. its focal length will be **30** cm.
3. In meiotic cell division, Crossing over phenomenon occurs at the end of **Anaphase 1**.
4. The scientist **laplace** assumed the modern theory about the origin of solar system.
5. In Telophase of mitosis cell division, two new separate cells are formed, each cell has **half** number of chromosomes of mother cell.
6. Concave lens **converges** the light rays that falling on its surface.

B What would happen in the following cases :

1. If the starfish loses one of its arms containing a part of its central disc.
2. If the incident light ray falls parallel to the principal axis of concave mirror.

C Mention the measuring unit for the following :

1. The mass.
2. Vector velocity.

Question 4

A Write the scientific term for the following :

1. The total distance that a moving object covers divided by total time taken to cover this distance.
2. The object's speed changes (increases or decreases) by equal values through equal periods of times.
3. The space which contains all the galaxies, stars, planets, moons and living organisms.
4. A biological process, where the living organism produces new individuals of the same kind and thus, ensuring its continuity.
5. The distance moved through a unit time.
6. The angle between the incident light ray and the perpendicular line on the reflecting surface from the point of incidence.

B Compare between the following :

1. Distance and displacement (according to definition).
2. Real image and virtual image.



2 Giza Governorate

Answer the following questions :

Question 1

A Complete the following statements :

1. In Milky Way galaxy, the old stars (the older) gather in the .... of the galaxy.
2. Parental individual disappears when reproduction occurs in ....
3. The incident light ray that passes through the focus of the convex lens, it exits from the lens ....
4. Mass is considered from .... physical quantity.

B Give reasons for :

1. The body which moves at acceleration can't move at a regular speed.
2. Shrinking of spindle fibers during the anaphase.

C Compare between : Pollen grain and sperm according to (site of formation).

Question 2

A Choose the correct answer :

1. Within minutes of Big Bang, hydrogen gas was formed by a percentage of .... %.
   a. 25 b. 50 c. 75 d. 100
2. If the number of chromosomes in liver cells of a certain living organism is (32) chromosomes then the number of chromosomes in ovum cell is ....
   a. 8 b. 16 c. 24 d. 32
3. The optical piece which forms laterally inverted (reversed) image and equal to the body is ....
   a. convex lens b. concave lens c. spherical mirror d. plane mirror.
4. A train moves at a speed (100 km/h), then it cover a distance of (40 km) within time .... hours.
   a. 0.3 b. 0.4 c. 0.5 d. 0.6

B When do the following happen ... ?

1. Formation of real image at the same position of the object which is placed in front of a concave mirror.
2. The displacement equal (identical) to the distance for moving body.

C Calculate the actual speed of the car whose relative speed is (80 km/h) relative to an observer moving in opposite direction at a speed of (30 km/h).

Question 3

A Write the scientific term for each of the following :

1. A theory assumed that the solar system was originally a glowing gaseous sphere revolving around itself.
2. The nucleic acid that carries the genetic traits of the living organism.
3. A mirror, always forms a diminished image for the object.
4. The displacement in one second.

B Define : 1. Tetrad. 2. The focal length of a lens.

C An object is placed at a distance of (8 cm) from a concave lens has a focal length (2 cm) :

1. Draw the direction of the ray that eye sees the image.
2. Mention the properties of image formed.

Question 4

A Correct the underlined words :

1. Sudden violent **chemical** reactions occur within the star which led to its explosion.
2. Reproduction by sporogony occurs in **starfish**.
3. The long-sightedness is corrected by using **concave mirror**.
4. A moving car covers a distance of (200 kilometer) through (150 min.), then its speed is **90** km/h.

B What is meant by ... ?

1. A moving car covers a distance of 100 km in two hours.
2. Zygote.

C A train moves at a speed (30 m/sec). And when the brakes is used it moves with a decelerating (3 m/sec^2). Calculate the time taken to stop the train.

3 Alexandria Governorate

Answer the following questions :

Question 1

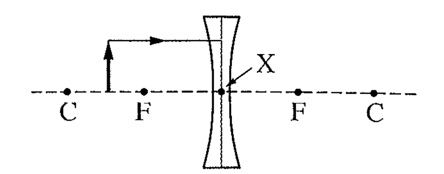
A Complete the following statements :

1. The solar system lies on one of the spiral arms of .... galaxy.
2. From the scalar physical quantities is ...., while .... is from the vector physical quantities.
3. Condensing the cytoplasm in the two poles of the plant cells forms ....
4. Crossing over phenomenon happens between the .... during the meiosis division.




B 1. Copy the figure then draw the rays that form the image of the object.

2. The point (X) refers to ....



C **What is meant by the followings ... ?**

1. Fertilization.
2. The radius of curvature of a mirror.

Question 2

A **Choose the right answer :**

1. When a moving object covers equal distances in unequal intervals of time, so it moves by ....
   a. average speed. b. relative speed. c. uniforms speed. d. irregular speed.
2. The scientist who published a research including his vision about the Nebular assumption ....
   a. Chamberlin. b. Laplace. c. Fred Hoyle. d. Molten.
3. An object was put at 10 cm from a concave mirror, a real, inverted and equal image was formed, if the object moved 3 cm towards the mirror, so the formed image will be ....
   a. real, inverted and diminished. b. real, inverted and enlarged.
   c. virtual diminished. d. virtual enlarged.
4. An observer in a moving car with 80 km/h was observing a moving car with 90 km/h in the same direction so, the observed speed of the 2^{nd} car is ....
   a. 10 km/h. b. 80 km/h. c. 90 km/h. d. 170 km/h.

B **What are the results of the followings ... ?**

1. Falling of parallel peam of light parallel to the principal axis of a convex lens.
2. The meiosis division inside the anther and the ovary of a flower.

C **Name the phase that indicates the following changes during the cell division :**

1. Form two separate groups of chromatids.
2. Disappearing of the nucleolus and the nuclear membrane.

Question 3

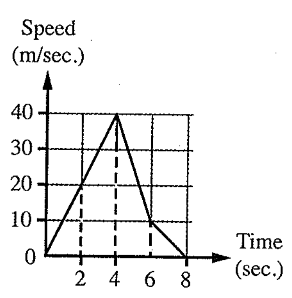
A **Write the scientific term for the following :**

1. Groups of stars gathered in distinctive shape.
2. The ability of some animals to compensate their missing parts.

B **The next graph illustrates the movement of a car, study it and answer the following :**

1. The driver used the brake for the first time at the .... second when the speed value was .... m/sec.

2. Calculate the acceleration of the car through 4 seconds from the starting point.



C Compare between long-sightedness and short-sightedness concerning the concept and the treatment.

Question 4

A Correct the underlined parts in the following :

1. Amoeba reproduces by **budding**.
2. The formed image of an object that is put at **the centre of curvature** for a convex lens is virtual enlarged.

B Give reasons for the following :

1. The sporangium of bread mould fungus must be ruptured during reproduction.
2. The merging of atomic particles that happened during the Big Bang produced stars and the universe.

C Look at the following figures and answer :

1. Which of the two figures express the formation of F letter image.
2. The other figure is wrong because .... and ....

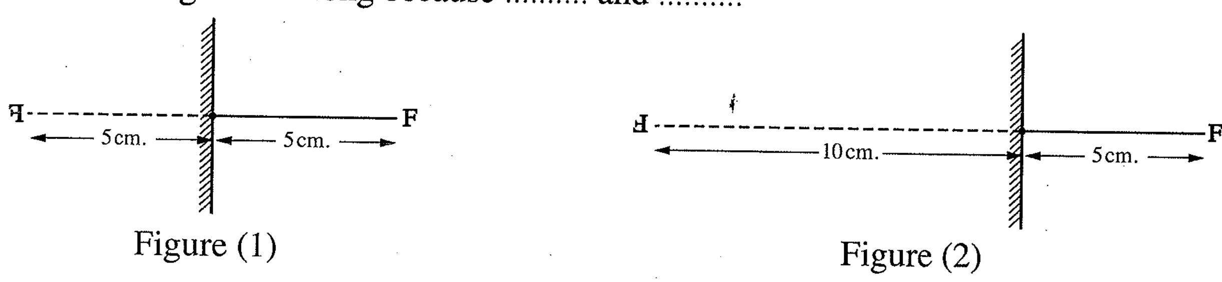


Figure (1) Figure (2)

4 El-Kalyoubia Governorate

Answer the following questions :



A Write the scientific term for each of the following statement :

1. The point of connection of the two chromatids in a chromosome.
2. The line that passes through the optical centre of the lens without passing through the two centres of curvature of its faces.

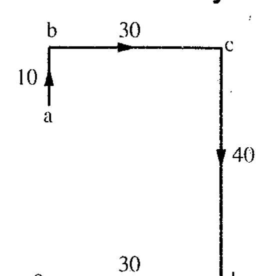


3. The distance between the pole of a spherical mirror and its center of curvature.
4. It's the Sun and eight planets revolving around it.
5. The speed of a moving body that covers equal distances at unequal time intervals.

B What is meant by ... ?

1. The value of the length of the shortest straight line between two positions = 5 m.
2. The relative speed.
3. Spindle fibers during cell division.

C A person moves in the path (a b c d e) as shown in figure, he covered a distance of 10 m. northward in 2 seconds, then he covers 30 m. eastward in 10 seconds. and followed by 40 m. southward in 8 seconds, finally 30 m. westward in 5 sec.



1. Calculate the displacement of the person from the start of motion to end.
2. In which part of the person motion, his speed was the least ?

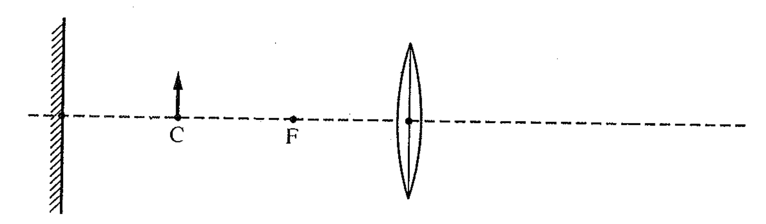
Question 2

A Choose the correct answer :

1. The .... is the phase in which the cell is prepared for division by doubling the genetic material.
   a. prophase b. interphase c. metaphase d. anaphase
2. A concave mirror has a focal length of 8 cm. An object is placed in front of this mirror forming an image at a distance 20 cm from the mirror. This means that the object is placed at .... from the mirror.
   a. 8 cm.
   b. less than 8 cm.
   c. 20 cm.
   d. more than 8 cm. and less than 16 mc.
3. A doctor advised a person who has a sight defect to use glasses with convex lenses. It means that this person suffers from ....
   a. a decrease in the convexity of the eye lens surface.
   b. an increase in the convexity of eye lens surface.
   c. an increase in the eyeball diameter.
   d. disability of seeing far objects clearly.
4. Reproduction by spores occurs in all the following organisms, except ....
   a. starfish. b. fungus. c. bread mould. d. mushroom.
5. One of the vector physical quantities is ....
   a. time of a car trip.
   b. length of a pen.
   c. mass of a cat.
   d. force by which person pushes a stone.

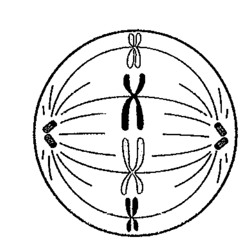
B In the figure shown, an object is placed at the centre of curvature of one face of a convex lens of focal length 6 cm. Then, a plane mirror is placed at the other side of the object at 8 cm. from the object. Copy the diagram in your answer sheet and answer :

1. Draw the path of light rays incident on the lens to form an image on a screen in front of the lens.
2. Calculate the distance between the two images formed by the lens and the mirror.



C The figure in front of you shows a phase of cell division. Answer the following :

1. What is the type of this division ?
2. What is the name of this phase ?
3. What is the importance of this type of division ?



Question 3

A Put (✓) in the front of correct statements and (×) in front of the wrong ones :

1. The solar system includes several galaxies. ( )
2. If the angle between the incidence ray and the reflected ray is 60°, the angle between the reflected ray and the reflecting surface is 60°. ( )
3. The displacement of an object is measured in m/sec. ( )
4. An assumption of the crossing star theory is that a star revolves near the Sun. ( )
5. Bread mould fungus reproduces by binary fission. ( )

B Give reasons for the following :

1. Meiotic cell division is called reduction division.
2. A donor for a part of the liver suffers no harm and can survive.

C A car moved from Banha to Cairo at a distance of 40 km in 30 minutes, then it returns back from Cairo to Banha in the same time. Calculate (in km/h) :

1. The car velocity from the beginning to the end of the journey.
2. The average speed of the car during the total time.



Question 4

A What would happen in each of the following ... ?

1. Absence of anther from the floral plants.
2. To the value of velocity of a moving object if the time of the same displacement is increased to double.
3. The organization and arrangements of stars in the galaxy were changed.
4. Focusing laser on the gold Nano-particles in the cells infected by cancer.
5. A light ray is incident passing through the center of curvature of a concave mirror.

B Mention the properties of the formed image in each of the following cases :

1. An object is placed in front of a convex mirror.
2. An object is placed in front of a convex lens at a distance less than its focal length.
3. An object placed at the focus of a convex lens.

C A car speeds up from 0 m/s to 10 m/s in 4 seconds, then it slows down to 5 m/s in 2 seconds. Calculate :

1. The acceleration of the moving car in the first stage and the acceleration of the moving car in the second stage.
2. The time taken by the car in the second stage to stop if it moves at the same rate of velocity change.



5 El-Sharkia Governorate

Answer the following questions :

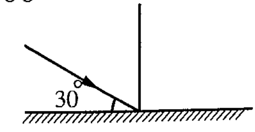
Question 1

A Choose the correct answer :

1. If the uniform speed of a car is (90 km/h). This means that the car covers a distance equals .... metres in 40 sec.

   a. 1000 b. 2000 c. 2600 d. 4000

2. A light ray that falls on a plane mirror as in the figure it reflects, where the angle of reflection equals ....



   a. 30° b. 60° c. 90° d. 50°

3. The person with normal vision sees the near objects clearly at a distance not less than ....

   a. 2 cm. b. 25 cm. c. 6 m. d. 10 m.

4. The ratio between the final speed and the initial speed of an object moves at an accelerating motion is ....
   a. more than 1. b. less than 1. c. equal to 1. d. equals to zero.
5. The earliest life forms began to appear on the Earth after .... million years from the Big Bang.
   a. 3000 b. 12000 c. 15000 d. 17000

B Define each of the following :

1. Reproduction by sporogony (spore propagation).
2. Fertilization.
3. Average speed.

C A train starts to move at 6 O'clock in the morning. Then what is the time of arrival if it moves at speed of 40 Km/h to cover the distance of 200 Km.

Question 

A Write the scientific term for each of the following :

1. The speed of a moving object relatively to a constant or a moving observer.
2. The mirror, whose reflecting surface is a part of the inner surface the sphere.
3. It contains the Sun and the solar system.
4. Asexual reproduction takes place in some plants without needing seeds.
5. A point inside the lens that lies on the principal axis in the mid distance between its faces.

B Give reasons for :

1. The object that is placed at the focus of a convex lens has not an image.
2. (Distance – Time) graph of an object that moves at uniform speed is a straight line passing through the origin point.
3. Asexual reproduction in living organisms produces individuals identical in genetic structure.

C In the opposite figure :

An object was placed between a convex lens whose focal length is 6 cm. and a plane mirror.

1- Complete the following statements :

a. The image formed of the object by a plane mirror at a distance of .... cm. from it's surface.

b. The image formed of the object by a convex lens at a distance of .... cm. from it's face

Object
12 cm.
12 cm.

c. The distance between the image of the object which is formed by a convex lens and the image which is formed by a plane mirror equal .... cm.

2- Show by drawing the formed image by the convex lens.



Question 3

A Complete the following sentences :

1. In human and animals, meiosis occurs in .... to produce the male gametes, while it occurs in .... to produce the female gametes.
2. Physicists use mathematical relations like .... and .... to predict the relation between certain physical quantities.
3. The vision defect which is due to the decrease in the eyeball diameter is called .... and is corrected by .... lenses.
4. The two factors which can be used to describe the motion of a body are the .... and ....
5. The chemical structure of the chromosome is .... and ....

B Compare between :

1. The real image and the virtual image.
2. Crossing star theory and modern theory (according to the name of scientist and the origin of the solar system).

C Show by drawing and write down the labels :

Interphase in mitosis division.

Question 4

A Correct the underlined words :

1. The spindle fibers are formed in the plant cell from the **centrosome**.
2. The car which begins its movement from rest, moves at **uniform speed**.
3. Chromosomes are arranged at the middle of the cell in the **telophase.**
4. Contact lenses can stick to **eye iris** and can be removed easily.
5. **Acceleration** is the actual length of the path that a moving object takes from the starting point of movement to the end point.

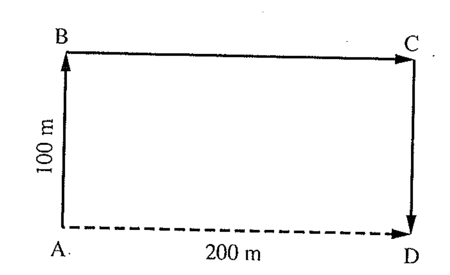
B 1. Show by drawing and write short notes about : Prophase 1 in the first meiotic division.

2. Show by drawing : The relation between (speed – time)

Number of trail	Distance (d) in metre	Time (t) in second	Speed V = d/t (m/s)
1	0.4	5	0.08
2	0.6	7.50	0.08
3	0.8	10	0.08
4	1.0	12.50	0.08

C In the opposite figure :

Two cars moved at the same time from (A) to (D), the first car takes the pass (ABCD) in 20 sec. and the second car takes the pass (AD) with regular speed 20 m/sec.



1. Which of the two cars reach first to point (D).
2. Calculate the velocity of the first car.

6 El-Menofia Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

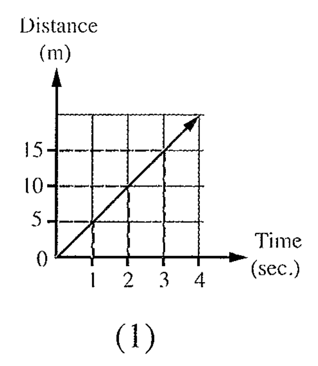
1. The ratio between initial speed and final speed for a moving object by increasing accelerations is ....
   a. more than one. b. less than one. c. equal to one. d. equal zero.
2. A short sighted person sees the far objects distorted as their images formed ....
   a. on the retina. b. behind the retina. c. in front of the retina. d. in front of the lens.
3. From examples of the scalar physical quantities is ....
   a. the velocity. b. the mass. c. the force. d. the acceleration.
4. The cell that never divide is ....
   a. adult red blood cells. b. the stomach.
   c. the liver. d. the skin.
5. Paramecium is a protozoan that reproduces by ....
   a. spores. b. budding. c. regeneration. d. binary fission.

B When each of the following values equal "Zero" :

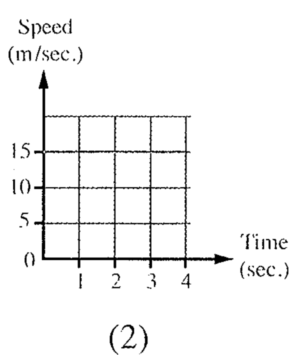
1. Reflecting angle of a light ray incident on a plane mirror.
2. The velocity of a moving object.
3. Reflecting angle for an incident ray falls on reflecting surface of a cancave mirror.



C **The following graphs represent the motion of two trains :**



(1)



(2)

1. Describe the motion of the train in figure (2) ?
2. Calculate the speed of the train in figure (1) ?

Question 2

A **Write the scientific term for each :**

1. Asexual reproduction occurs by different parts of the plant without seeds.
2. A point inside the lens lies on the principal axis in the mid distance between its faces.
3. Are formed of reproductive cell inside living organisms by meiotic division.
4. Is the speed of the moving object relative to the observer.
5. A series of adverse changes occur which lead to the formation of a complete set of chromosomes that have the same number of the mother cell's chromosomes.

B 1. According to your study, copy the following table in your answer sheet and complete it by two applications of (LASER) in our practical life.

(The user)

The application	Who benefits of the application	The importance of the application
1^{st}		
2^{nd}		

2. An object moved (8) meters to east then (5) meters to west, determine :
The magnitude and the direction of the object's displacement ?

C **A thin walled glass sphere its diameter (42 cm.) A suitable part of it was cut. its inner surface was the reflecting surface :**

1. What is the type of the mirror produced in the cut part ? find its focal length ?
2. By drawing only show properties of the image formed by using the cutting part of the sphere if an object placed at a distance of (10 cm.) of its pole ?

Question 3

A Correct the underlined words :

1. The clear vision for a normal vision person remains, if the object comes closer at a distance not less than **60 cm**.
2. The ratio of number of cells produced due to the 3rd division to number of cells produced due the 2nd division equals $\left(\frac{6}{2}\right)$.
3. A phase where some important biological processes occur to prepare the cell for division is called **prophase**.

B Give reasons for :

1. The force is a vector quantity.
2. Wind direction may affect the amount of consumed fuel by the airplane between two cities in going flight than return.
3. Uniform speed for a car hard to done practically.
4. Crossing over phenomenon is an important factor in genetic variation among individuals of the same species.
5. Every galaxy has a definite shape differs of other galaxies.

C A moving car by a uniform speed covers (80) meters in (4) seconds. Then the driver press the brakes, so it stopped after other (4) seconds. Find :

1. The magnitude of the acceleration within 1st (80) meters.
2. The magnitude of the acceleration after pressing the brakes.

Question 4

A Complete the following by suitable words :

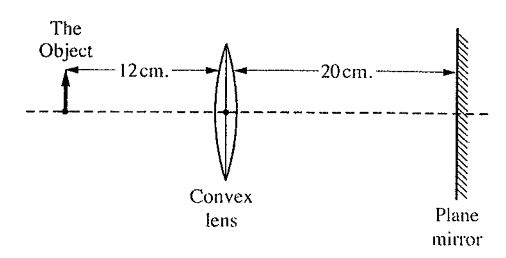
1. Velocity and displacement of an object are similar in .... and for the measuring units they are ....
2. The result of dividing the total distance over the total time to cover it is equal .... and it is equal .... if the object moves by it. The object covers the same distance in the same time.
3. The Big Bang theory explain the origin of ...., while the nebular theory is one of the theories which explain the origin of ....
4. In animal cell spindle fibers formed from ...., while in plant cell spindle fibers form .... at the poles.



B Compare between :

1. The crossing star theory and the modern theory. (in term of the scientist developing the theory)
2. Sexual reproduction and asexual reproduction. (in term of properties of the offsprings)

C In the figure convex lens formed an image for the object at its left side at a distance of (12 cm), and this image is (real – inverted – equal to the object) in front of a reflecting surface of a plane mirror a way of the lens (20 cm).
Conclude each of the following :



1. Focal length of the convex lens.
2. The distance between the object and the image formed by the plane mirror ?
   is the image upright or inverted for the object ?

7 El-Gharbia Governorate

Answer the following questions :

Question 1

A Complete the following statements :

1. The product of the velocity of moving body × the time equal ....
2. The galaxy that solar system belongs to is called ....
3. The image formed by concave lens is always .... erect and diminished.
4. The nucleolus and nuclear membrane disappear at the end of .... of mitosis.
5. The change of an object position as time passes according to the position of another fixed object is called ....

B What is meant by each of the following ... ?

1. Fertilization. 2. Pole of the mirror. 3. Average speed.

C Within 2.5 second, the speed of a car increases from 20 m/s to 25 m/s, while a bike moves from rest and its speed reaches 10 m/s in the same time. Which moves at a greater acceleration ?

Question 2

A Choose the correct answer :

1. The reproduction which considered as a source of genetic variation is .... reproduction.
   a. vegetative b. budding c. sexual d. regeneration





2. Which of the following is considered as scalar physical quantities ? ....

a. Force b. Mass. c. Acceleration. d. Velocity.

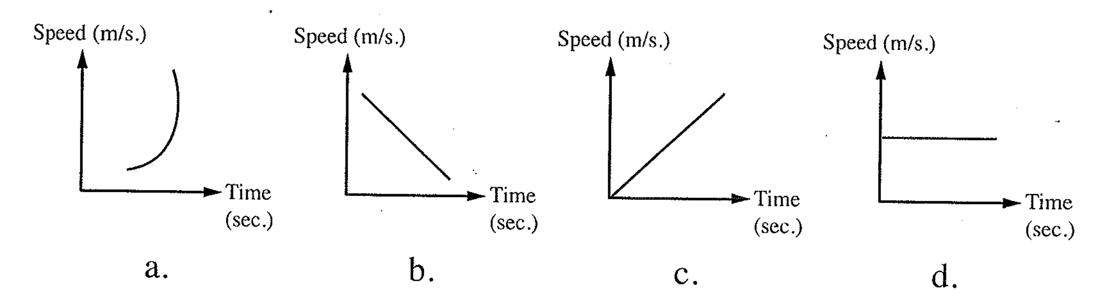
3. The scientist who established the nebular theory is ....

a. Chamberlain. b. Moulton. c. Fred Hoyle. d. Laplace.

4. Crossing over phenomenon happens in the end of first ....

a. prophase b. metaphase c. anaphase d. telophase

5. Which of the following graphs represents the movement of an object at a constant speed ? ....



B **Give reasons for :**

1. Meiotic division is called by reduction division.
2. Pilots take in consideration the velocity of the wind.
3. The image formed by a plane mirror cannot be received on the screen.

C **An object is placed at a distance of 30 cm from a concave mirror with a radius of curvature 40 cm.**

1. Calculate the focal length of the mirror.
2. Show by drawing the path of rays that show the formed image in this case.

Question 3

A **Correct the underlined words :**

1. Velocity is the quantity that we can identify it accurately by knowing its **magnitude only**.
2. Spores are formed in bread mould fungus inside special organs called **buds**.
3. The two gases which are produced galaxies, stars and universe over millions of years are **oxygen and nitrogen**.
4. If an object is put in front of concave mirror at **focus,** the formed image is real, inverted and equal to the object.
5. When a moving object covers unequal distances at equal periods of time so, it moves with **non-uniform acceleration**.



B What would happen when ... ?

1. A light ray passes through the optical center of the lens.
2. Putting a yeast fungus in a warm sugary solution.
3. The initial speed of the moving body is greater than the final speed.

C Compare between each of the following :

1. Short-sightedness and long-sightedness (according to the position of the formed image).
2. Asexual reproduction and sexual reproduction (according to the number of parents).

Question 4

A Write the scientific term :

1. The distance covered in a certain direction.
2. The nucleic acid that carries the genetic traits of the living organisms.
3. The speed of the moving object relatively to a constant or moving observer.
4. An equipment was launched to the space, allows astronomers an opportunity to study the evolution of the universe.
5. The rebounding of the light to the same side when it strikes a reflecting surface.

B Mention the importance of each of the following :

1. Speedometres in the car.
2. Nano-molecules of gold.
3. A convex mirror which is put at the left side of the driver of the car.

C Two cells are divided, one of them in the plant stem and the other in the plant ovary, if you know the number of chromosomes in each of them is 6 pairs of chromosomes, mention :

1. The kind of cell division in each cell.
2. The number of chromosomes in each resulted cell.

8 El-Dakahlia Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. The accurate definition of the speed is the distance covered through ....
   a. the time. b. a unit time. c. an hour. d. a minute.
2. (Speed - time) graph for a regular motion at a constant speed is a straight line is ....
   a. curved. b. passing by the origin point.
   c. parallel to x-axis. d. parallel to y-axis.




3. When an object is placed to face a convex mirror, the image formed is ....
   a. lies behind the mirror. b. is real. c. is erect. d. (a) and (c).
4. Fred Hoyle relates controlling the Sun in the orbits of the planets around it to .... of the Sun.
   a. temperature b. rotation speed c. attraction force d. glowing
5. The chemical structure of the chromosome is ....
   a. the nucleic acid only. b. protein and nucleic acid.
   c. protein, fats and nucleic acid. d. all the previous.

B Pierre Simon Laplace is affected by two observations during the assumption of the nebular theory, mention them.

C A runner covered a distance of 60 meters of a straight track in 10 seconds, and then he returned back walking. He took 50 seconds to come back to the starting point of running. Calculate the runner's average speed :

1. While running. 2. While returning. 3. During the whole trip.

Question 2

A Complete the following sentences :

1. The contact lenses are used instead of the .... and it is made of ....
2. The convex lens .... the light, while the convex mirror .... the light.
3. The force is considered .... physical quantity, while the distance is considered .... physical quantity.
4. The solar system is located in one of the spiral arms of the .... on the ....
5. There are two types of reproduction in living organisms which are .... and ....

B Compare between : reproduction by budding and reproduction by sporogony according to site of occurrence and give examples for each.

C Two cars move in the same direction, if the speed of the first car is 50 km/h and the second car is 70 km/h. Calculate the relative speed of the second car relative to an observer :

1. Standing on the ground. 2. Sitting in the first car.
3. What are you conclude from the resultants.

Question 3

A Write the scientific term of each of the following :

1. The regular speed by which the moving object moves to cover the same distance at the same period of time.



2. The change of the object speed by equal values through equal period of time.
3. Bouncing of the light to the same side when it strikes a reflecting surface.
4. The ability of some animals to compensate their missing parts.
5. The point inside the lens on the principal axis in the mid distance between its faces.

B Show by drawing what happen in anaphase 1 for meiosis division.

C A car moves at speed 40 m/sec. If the driver used the brakes to decrease the speed so, it decreases by 2 m/sec². Calculate its speed after 15 seconds from using the brakes.

Question 

A Correct the underlined words :

1. When an object is placed at **the center of curvature** of a concave mirror, its formed image is real, inverted and enlarged.
2. **Crossing star** is a glowing gaseous sphere revolving around itself, from which the solar system was originated.
3. **Concave mirror** is a transparent medium that refracts the light and is limited with two spherical surfaces.
4. **Average speed** is the speed of a moving object relative to a constant or a moving observer.

B Give reasons for :

1. The word ambulance is written in a laterally inverted way on the ambulance car.
2. The short-sightedness is corrected by using a concave lens.
3. The lens had two foci, while the spherical mirror has one focus.
4. Cellular division begins with interphase before starting mitosis division.

C Show scientific reason for each of the following :

1. The angle of reflection of a light ray fall perpendicular on a plane mirror = zero.
2. A body moves at zero acceleration.

9 Ismailia Governorate

Answer the following questions :

Question 

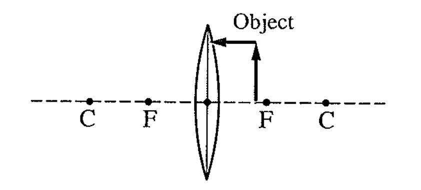
A Complete the following sentences :

1. The movement path in one direction may be ...., ... or a combination of both.
2. Force is considered .... physical quantity, while mass is .... physical quantity.
3. The cell .... contains the genetic material of the living organism which consists of a number of ....

B **What are the results of each of the following :**

1. Less convexity of eye lens surfaces.
2. Rupturing of the sporangium of bread mould fungus.

C **In the opposite figure :**



1. Complete the path of the rays to form an image for the object.
2. Mention the properties of the formed image.

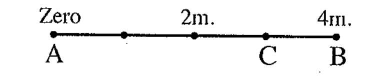
Question 2



A **Write the scientific term for each of the following statements :**

1. The value of a moving object's speed relatively to a constant or a moving observer.
2. The covered distance at a certain direction.
3. The straight line that passes by center of curvature of the mirror and its pole.
4. A glowing gaseous sphere formed the planets of the solar system.
5. The total distance covered by a moving object divided by the total time taken to cover this distance.

B **In the opposite figure :**



A person moves from point (A) to point (B), then changes his direction to point (C) through 10 seconds, Calculate :

1. The total distance covered by the person.
2. The displacement done by the person.
3. The velocity.

C **Compare between :**

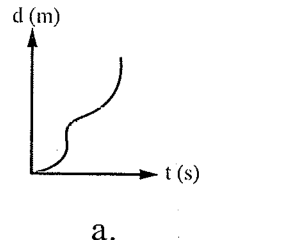
Crossing star theory and the modern theory according to assumption of each about the origin of the solar system.

Question 3

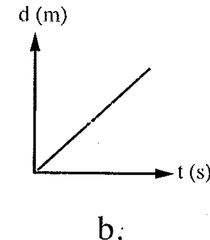


A **Choose the correct answer :**

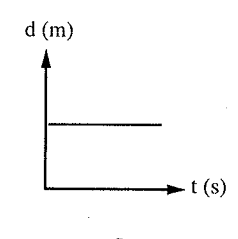
1. The graph .... represents the movement of a body at a constant speed.



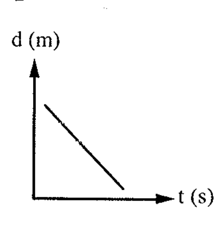
a.



b.



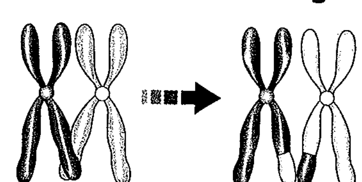
c.



d.

2. From the properties of the image formed by a convex mirror is ....
   a. virtual. b. real. c. upright. d. (a) and (c) together.
3. Chromosomes of reproductive cells are doubled in the interphase before .... division.
   a. first meiosis b. second meiosis c. mitotic d. no correct answer.
4. If a person stands at a distance 2 m from a plane mirror, the distance between the person and his image is ....
   a. 1 m. b. 2 m. c. 3 m. d. 4 m.
5. The value of change of an object speed in one second is called ....
   a. velocity. b. displacement. c. acceleration. d. speed.

B The opposite figure represents the crossing over phenomenon, Answer the following :



1. What happens in this phenomenon ?
2. What is the name of the phase in which this phenomenon occurs ?
3. Draw the following phase to the phase in which this phenomenon occurs.

C Mention only one use for each of the following :

1. The contact lenses.
2. The solar telescope.

Question 4

A Rewrite the following statements after correcting the underlined words :

1. Radius of mirror curvature = $\frac{1}{2}$ × the focal length.
2. The chromosome consists of two chromatids connected together at the **nucleus**.
3. The speed of a car can be identified directly by using the **compass**.
4. In the universe, groups of **planets** are gathered to form the galaxies.

B Give reasons for :

1. The lens had two centers of curvature (C_1 and C_2).
2. The moving body with acceleration cannot move with regular speed.
3. Binary fission is considered a mitotic division.

C Choose from column (B) what suits column (A) :

(A)	(B)
1. Reproductive cells	a. in which mitotic division occurs.
2. Plant cells	b. produce gametes.
3. Somatic cells	c. in which the spindle fibers is formed from the cytoplasm.
	d. contain a haploid number of chromosomes.

10 Suez Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. The movement path may be .... or .... or both of them.
2. When the object lies in front of .... lens, a virtual and diminished image is formed.
3. The yeast fungus reproduces by ...., while the starfish reproduces by ....

B When does this happen ... ?

1. The acceleration of a moving object = zero.
2. The displacement of an object = the distance that the object moved.
3. The person suffers from short-sightedness.

C There are two types of cell division. One of them includes the following Phases :

(Anaphase - Metaphase - Telophase - Prophase)

1. What is the type of division that include these phases.
2. Arrange the previous phases according to the sequence of their occurrence.

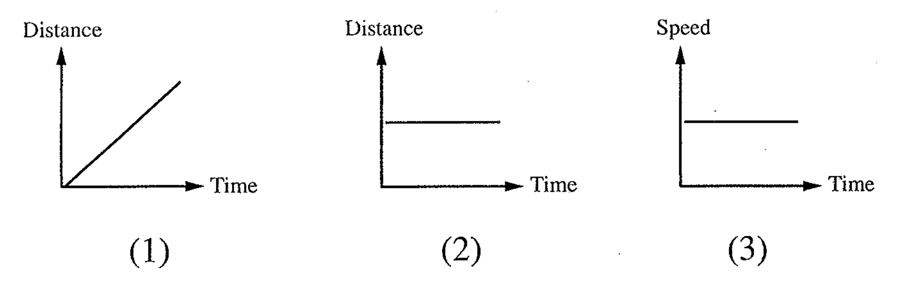
Question 2

A Choose the correct answer :

1. The number of chromosomes in the gamete is .... the number of the chromosomes in the original cell.
   a. quarter. b. half. c. double. d. equals.
2. Our solar system is located in one of the .... arms of the Milky way galaxy.
   a. spiral b. straight c. circular d. oval
3. The reproduction which considered as a source of genetic variation is a .... reproduction.
   a. budding. b. vegetative c. sexual d. asexual
4. The distance from the center of mirror curvature and its focus equals ....
   a. radius of curvature. b. quarter of the diameter of curvature.
   c. dimeter of curvature. d. half of the focal length.
5. From the scalar quantities ....
   a. the time. b. the force.
   c. the acceleration. d. the displacement.



B **Describe the case of the body in each of the following graphs :**



C **What happens in the following cases :**

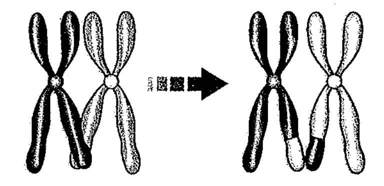
1. Explosion of the expanded part from the Sun towards the crossing star (according to the crossing star theory).
2. The combination of the male gamete and female gamete.



A **Write the scientific term for the following :**

1. Changing the position of an object as the time passes according to the position of another fixed object.
2. A point located inside the lens and lies on its principal axis.
3. The speed of the moving object relative to the observer.
4. It contains all the galaxies, stars, planets and living organisms.
5. It's a mirror that its reflecting surface is a part of a hallow sphere.

B 1. What is the name of this phenomenon in front of you ?
2. What is the importance of its occurrence.
3. Mention the name of the phase that this phenomenon occurs ?



C **A driver used brakes to stop the car moved by 20 m/sec. Calculate the time taken by the car to stop. Given that the car moved with a decelerating motion equals 2 m/sec^2**

Question 4

A **Correct the underlined words :**

1. When the light ray falls by an angle of <u>30°</u> on the reflecting surface, so the reflected ray will be perpendicular on the reflecting surface.
2. The parent individual disappears during the reproduction by <u>**sporogony**</u>.
3. The measuring unit of the speed is <u>**meter/second^2**</u>.



4. **Relative speed** represents the regular speed by which the moving object moves to cover the equal distance at the same period of time.
5. The universe emerged from the particles of **oxygen and nitrogen**.

B An object is put at a distance of 4 cm. from the optical centre of a lens a (real - magnified) image is formed for the object and when the object moved a distance of 2 cm away from the lens a (real-equal to the object) image is formed.

1. What is the kind of the lens ?
2. Draw the path of the rays that formed the image when the object was at a distance of 4 cm from the optical centre of the lens ?

C Give reasons for :

1. When you look at the mirror you see your face image.
2. There are no new species of grapes when they reproduce by vegetative reproduction.



11 Port Said Governorate

Answer the following questions :

Question 1

A Replace each of the following statements by a scientific term :

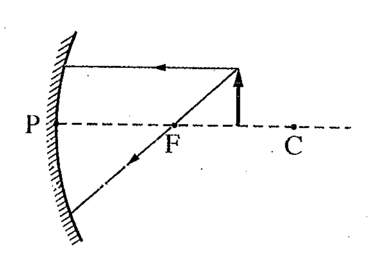
1. The change in the position of an object by the time relative to a reference point.
2. It contains the Sun and the solar system.
3. The mid-point on the reflecting surface of the mirror.
4. The part in the cell which is responsible for cellular division.
5. The incident light ray, the reflected light ray and the normal line all lie in the same plane perpendicular to the reflecting surface.

B Compare between :

1. Distance and displacement in terms of definition and type of the physical quantity.
2. Galaxy and solar system in terms of definition.

C Draw the figure in your answer paper, then :

1. Complete the path of the incident rays on the mirror from the object.
2. Mention the characteristics of the formed image and its position.



Question 2

A Correct the underlined words :

1. The spindle fibers in the animal cell is formed from **condensing the cytoplasm**.
2. The lens is a transparent medium that **reflects** the light.
3. In plane mirror the object distance from the mirror is **larger than** the image distance.
4. **Asexual** reproduction is a source of genetic variation.
5. The Sun takes about **250** million years to complete one rotation around the center of the galaxy.

B What is meant by ... ?

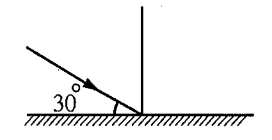
1. A car moving at a uniform speed = 80 km/hour.
2. The focal length of a concave mirror = 7 cm.
3. The average speed of a moving car = 70 km/hour.

C Within 2.5 seconds the speed of a car increases from 20 m/s to 25m/s, while a bike moves from rest and its speed reaches 5 m/s in one second. Calculate the acceleration of the car and the acceleration of the bike ?

Question 3

A Choose the correct answer :

1. Examples of scalar's physical quantities ....
   a. mass & force. b. force & acceleration.
   c. mass & distance. d. force & time.
2. The two gases which produced galaxies, stars and universe through millions of years are ....
   a. oxygen & helium. b. helium & hydrogen.
   c. oxygen & carbon dioxide. d. helium & carbon dioxide.
3. .... reproduces by budding.
   a. Amoeba b. Starfish c. Sponge d. Mushroom
4. A light ray falls on to a plane mirror as in the figure it reflected, where the reflection angle equals ....



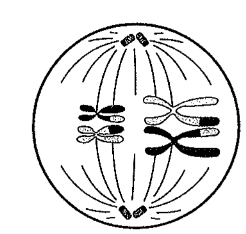
   a. 30 b. 60 c. 20 d. 90

5. The universe contains ....
   a. galaxies & stars.
   b. planets and moons.
   c. living organisms.
   d. all the previous.

B Give reasons for :

1. On their flights, pilots take into consideration the velocity of the wind.
2. The universe is in continuous expansion.
3. Cataract disease infects the eye.

C The opposite figure represents one of the division phases :



1. What is the name of this phase and the type of division ?
2. What is the name of next phase that follow it.

Question 4



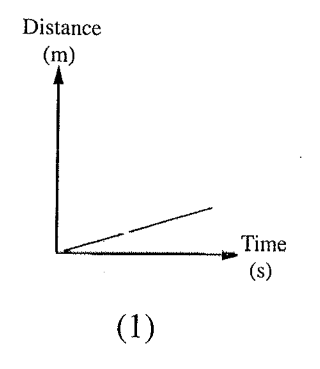
A Complete the following sentences :

1. The .... scientist established the modern theory of evolution of the solar system.
2. Measuring the relative speed depends on the position of the .... who determines the magnitude of this speed.
3. The Egyptian scientist Mustafa El Said discovered a way to detect the cancer cell by using ....
4. A short-sighted person needs a medical eye glasses with .... lenses.
5. The chromosome chemically consists of nuclear acid called DNA and ....

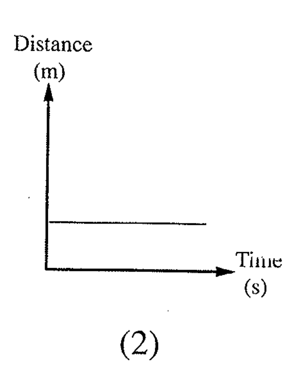
B What happens when ... ?

1. A light ray passes through the optical center of a convex lens.
2. The nebula gradually lost its heat (from point of view of Laplace scientist).
3. A plane mirror is placed at the left side of the driver instead of the convex mirror.

C Describe the motion of the object in each of the following graph :



(1)



(2)



12 Damietta Governorate

Answer the following questions :

Question 

A Choose the right answer :

1. Spindle fibers appear during the cell division in the ....
   a. telophase. b. interphase. c. prophase. d. metaphase.
2. The solar system is located in one of the .... arms of the “milky way” galaxy.
   a. spiral b. oval c. straight d. circular
3. If speed of a car is 72 km/hour this means that his speed equal .... m/sec.
   a. 50 b. 10 c. 15 d. 20
4. When an object acceleration equal zero this means that ....
   a. the body acceleration is decreasing. b. the body speed is variable.
   c. the body acceleration is increasing. d. the body speed is uniform.

B Mention one the importance for each of the following :

1. Speedometer. 2. Interphase.

C Show by drawing and write the labels :

The properties of the formed image for an object located in front of a convex lens between the focus and center of curvature.

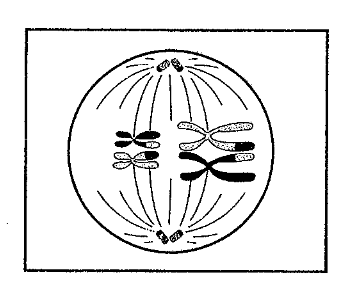
Question 

A Write the scientific term :

1. The combination of a male gamete and a female gamete to from a zygote.
2. The total distance covered by the moving object divided by the total time taken to cover the distance.
3. The space which contains all the galaxies, stars, planets and living organisms.
4. A type of asexual reproduction that occurs in simple algae.

B The opposite figure :

Represents one of the phases in a meiotic division



1. What is the name of this phase ?
2. Draw the diagram of the following phase ?
   ,What is the name of this phase.





C What happens when ... ?

1. The liver gets injured or apart of it is cut.
2. Elongation in the ball of the eye more than the normal situation.

Question 3

A Give reasons for :

1. Sexual reproduction is a source of genetic variation.
2. Pilots take in consideration the velocity of the wind.
3. There are no new races (new individual with other trait) of plants, when they reproduce by vegetative reproduction.
4. Displacement is vector physical quantity.

B What is meant by ... ?

1. The displacement of an object is 60 meters in west direction.
2. The distance between the focus of the concave mirror and its pole equal 10 cm.

C Compare between :

1. Acceleration and deceleration (according to definition).
2. The crossing star theory and the modern theory (according solar system was originally).

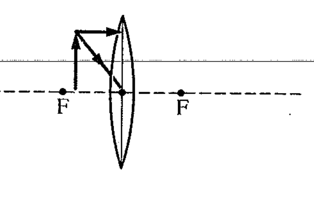
Question 4

A On a straight line there is a moving bus whose speed changes from 6 meters/sec to 12 meters/second during a period of three second. What is value of acceleration ?

B Rewrite the following statements after correcting the underlined words :

1. If two cars moving in the same direction at the same speed equal 120 m/sec., so the relative speed equal **60 m/sec**.
2. **The scientist Isaac Newton** published a research entitled "world order" and that was in 1796.
3. **Mitotic cell division (mitosis)** amis to produce gametes.
4. Yeast fungus reproduce asexually by **regeneration**.

C Draw the figure in your answer paper then complete to obtain virtual, upright and enlarged image for the object.





13 Kafr El-Sheikh Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. The solar system is located in one of the .... of the Milky Way on the edge of the galaxy and the Sun takes about .... year to complete one rotation around the center of the galaxy.
2. The spindle fibers in the animal cell is formed from ...., while in the plant cell the spindle is composed form the .... at the cell poles.

B What is the relation between the genetic structure for each of offspring and parents in the following cases :

1. Binary fission in paramecium.
2. The offspring resulting from the sexual reproduction.

C Explain what happens in the following cases :

1. The integration of the male gamete and female gamete.
2. Place the object in front of a concave lens.
3. The object placed in front of a convex mirror.
4. The nebula gradually lost its heat in the view of Laplace.

Question 2

A Write the scientific term of the following sentences :

1. A phase in which some important vital processes occur to prepare the cell for division and the amount of genetic material duplicates.
2. Is the straight line that passes by the pole of the mirror and it's center of curvature.
3. It is the ability of some animals to compensate their missing parts.
4. It is a theory that explains the origin of the universe from a massive explosion since 15000 million years.

B Show by drawing only of the image equal to the object by means of a convex lens.





C Complete the missing in the following table :

Speed (meter/s)	Distance (meter)	Time (second)
....	100	5
5	....	10
8	96	....

Question 3

A Identify the name of the division phase in which the following cases occur :

1. Chromosomes pairs arrange in the cell's equator.
2. Crossing over phenomenon.

B Compare between of the following :

1. Mitosis and meiosis division (purpose only).
2. Average speed and relative speed (concept only).

C Within 2.5 seconds the speed of the car increases from 20 m/sec to 25 m/sec, while a bike moves from the rest and its speed reaches 5 m/sec in one second, which of them moved at a greater acceleration.

Question 4

A Choose the correct answer :

1. The scientist who founds modern theory of the world is ....
   a. Fred Hoyle. b. Laplace c. Moulten.
2. The two factors in which the movement of an object can be described ....
   a. speed and time. b. distance and time. c. area and time.
3. Property of the image of the object formed by the plane mirror always be ....
   a. larger than the object. b. equal to the object.
   c. smaller than the object.
4. A convex lens has a focal lenth of 50 cm. an object is places at a distance of 80 cm. from the lens, the image of the object is formed at a distance ....
   a. greater than 100 cm. b. equal to 100 cm. c. equal to 50 cm.

B Give reasons for the following :

1. The constancy of the planets in their orbits around the Sun.
2. The concave lens is used to treat a short-sightedness person.

C **When the following occurs ... ?**

1. The object moves at zero acceleration.
2. The incident light ray reflects back on itself when falling on a concave mirror.

14 El-Behira Governorate

Answer the following questions :

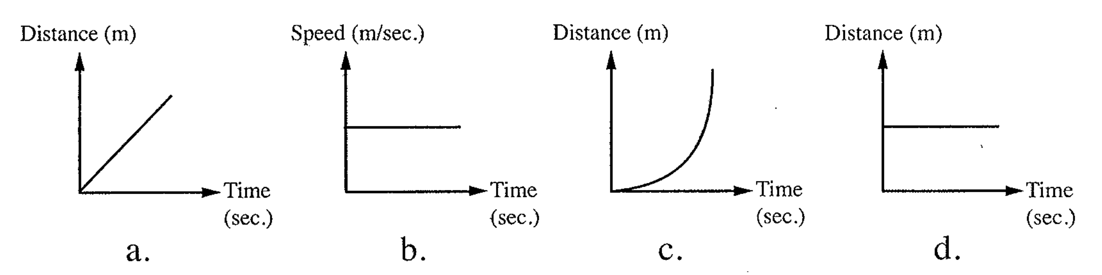
Question 1

A **Choose the correct answer :**

1. A person stands in front of a plane mirror at a distance of 3 meter, so the distance between him and his image is .... meter.

   a. 3 b. 4 c. 5 d. 6

2. Which of the following graphs describes the movement of an object moves with acceleration ? ....



3. **In the opposite figure :**

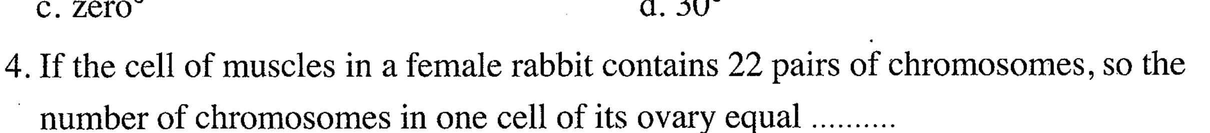
   The value of angle of reflection for the incident light ray is ....

   F C



   a. 90° b. 45°

   c. zero° d. 30°



4. If the cell of muscles in a female rabbit contains 22 pairs of chromosomes, so the number of chromosomes in one cell of its ovary equal ....

   a. 11 b. 22 c. 44 d. 88

5. The scientists believe that the universe emerged from massive explosion and it is in ....

   a. continues contraction. b. contraction then expansion.

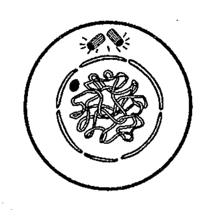
   c. expansion then contraction. d. continues expansion.

B **A speed of a car increased from 10 m/sec to 20 m/sec during 5 seconds, at the same time a bike started movement from rest and its speed reached 10 m/sec. Which one of them moved at a greater acceleration ?**



C **Write the name of this phase, and mention :**

1. When this phase happens ?
2. Why the cell passes through this phase ?



Question 2

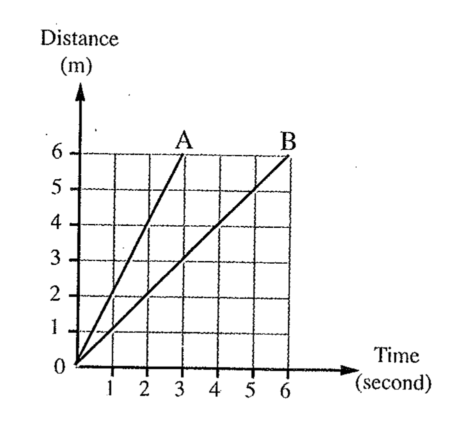
A **Write the scientific term for each of the following :**

1. The mass of cells which result from the abnormal cell when it is continually divided without controlling.
2. Biological process where the living organism produces new individuals of the same kind and thus, ensuring its continuity.
3. It is the speed of a moving object relative to a constant or a moving observer.
4. It is a very thin plastic lenses and can stick to the eye cornea.
5. It is the regular speed by which the object moves to cover the same distance at the same period of time.
6. A mirror whose reflecting surface is the outer surface of a sphere and diverges the light rays.

B **For which type of celestial bodies, each of the following belongs :**

1. The Earth. 2. The Milky Way.

C **The opposite graph represents the (distance - time) graph for the movement of two objects A , B**



From the graph, answer the following :

1. What is the kind of speed of the two objects ?
2. Calculate the ratio between the speed of object A and the speed of object B.

Question 3

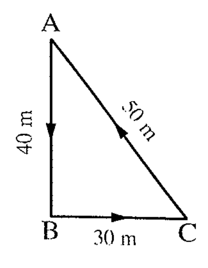
A **Complete the following sentences :**

1. Galaxies began to from after .... years after the Big Bang.
2. From the examples of the multicellular organisms reproduced by budding is ....
3. The point that lies in the middle of the reflecting surface of the concave mirror is called ....
4. The displacement covered by a body in one second is called ....



5. **In the opposite figure :**

A body starts its motion from point (A) to point (B), then to point (C), then returned to point (A), so the displacement covered equals .... metre.

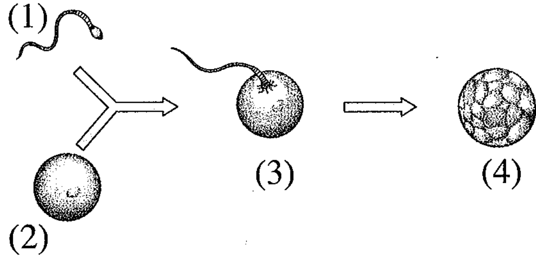


B **When the following cases happen ... ?**

1. The distance covered by an object equals the magnitude (amount of) displacement happened.
2. Formation of a real, inverted and equal image for an object that is placed in front of a concave mirror.

C **The opposite figure represents one of the important process to complete the reproduction.**

Answer the following :





1. What is the name of the process that number (3) refers to and what is the name of the produced cell ?
2. What is the importance of forming the cell number (3) ?
3. What is the kind of division in part (4) ?
4. What is the number of chromosomes in the cell number (1) ?

Question 4

A **Give reasons for :**

1. The short-sightedness is corrected using a concave lens.
2. Mass is a scalar quantity, while force is a vector quantity.
3. The word “AMBULANCE” is written laterally inverted way on the ambulance car.
4. No harmful effect happens for the donor person in liver transplantation.

B **What are the results of ... ?**

1. The gaseous cloud subjected to cooling and contraction processes “In Fred Hoyle theory”.
2. The Euglena cell divided by three successive mitosis divisions.
3. The exchange of genes between two homologous chromosome’s chromatids.




C An object is placed at a distance of 5 cm from a convex lens its focal length is 3 cm. Show by drawing the position of the formed image and mention the properties of this image, by drawing two light rays only.

15 El-Fayoum Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. Speed measuring unit is ...., while the measuring unit of acceleration is ....
2. The crossing over phenomenon occurs in .... of .... division.
3. .... and .... are types of spherical mirrors.
4. The Sun and the planets revolving around it, rotate around the center of .... galaxy.
5. Force is a .... physical quantity, while mass is a .... physical quantity.

B What's meant by ... ?

1. Angle of incidence.
2. Regular (uniform) speed.
3. The pole of the mirror.

C "A car starts movement from rest until its speed reaches 25 m/s after 10 seconds."

1. Calculate the value of acceleration.
2. What kind is the acceleration ?

Question 2

A Write the scientific term for each of the following statements :

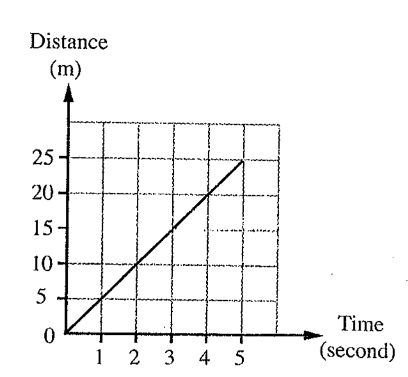
1. The combination of the male gamete and the female gamete to form zygote
2. A disease that infects the eye lens and it becomes opaque.
3. A vector quantity that equals the displacement in one second.
4. Ability of animals to compensate their missing parts.
5. The distance that light travels in a year.

B What happens in the following cases :

1. If an object moves at a regular speed, what is the value of its acceleration ?
2. When there is elongation in the ball of the eye.

C An object moves according to the graphical relation shown in the opposite figure, calculate :

1. The speed of the object's motion and mention its kind.
2. The time that the object takes to cover a distance of 15 meters.
3. The distance that the object covers in 4 seconds.





Question 3

A Choose the correct answer :

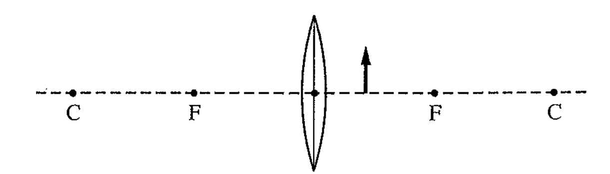
1. A human being stood in front of a plane mirror at a distance of 2 meters, so the distance between him and his image is ....
   a. 1 meter. b. 2 meters. c. 3 meters. d. 4 meters.
2. Meiotic division in flowering plants occurs in the anther to produce ....
   a. ovum. b. chromosome. c. pollen grains. d. sperm.
3. Within minutes of the Big Bang, the percentage of hydrogen in the universe was ....
   a. 25% b. 50% c. 75% d. 100%
4. If the speed of a car is 36 km/h , it means that its speed is .... m/sec.
   a. 10 b. 20 c. 40 d. 80
5. The spindle fibres appears during the cell division through the ....
   a. telophase. b. interphase. c. prophase. d. metaphase.

B Give reasons for :

1. The moving car seems stable to the observer who moves at the same speed and direction.
2. The cell passes through interphase before starting meiotic division.
3. Pilots take in consideration the velocity and the direction of the wind.

C In the shows figure :

1. Complete the ray to get the image.
2. Mention the properties of the image.



Question 4

A Correct the underlined words :

1. The lens is a transparent medium that **reflects** the light and defined with two spherical surfaces.
2. If the object's speed decreases by time, it is called **acceleration**.
3. Amoeba reproduces by **Budding**.
4. **Mitotic** division leads to form gametes.
5. The scientist who found the modern theory about the evolution of the solar system is **Laplace**.

B Mention one usage for each of the following :

1. The speedometer.
2. Nano-molecules of gold.



C "Two cells divide, one in a human female stomach and the other in her ovary" Mention :

1. The type of the division in each of the two cells.
2. The number of the cells produced from the stomach cell division.

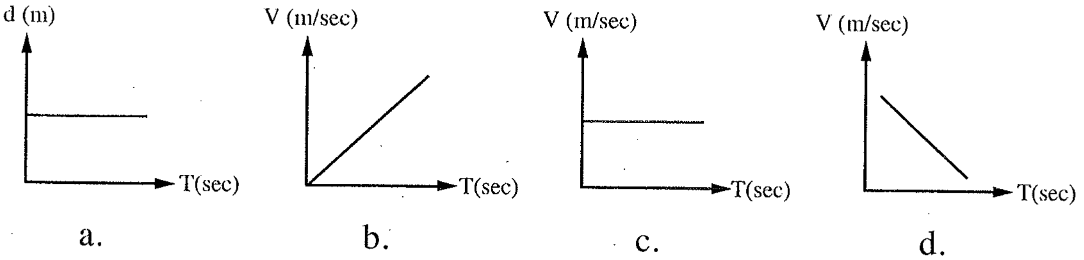
16 Beni-Suef Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. The distance and displacement are equal when the body moves in a .... in one direction.
   a. zigzag b. circular c. straight line d. curved
2. The following cells containing complete genetic material except ....
   a. germs. b. bud. c. zygote. d. pollen grain.
3. If the distance between two centers of curvatures to the lens is 20 cm. so its focal length equal ....
   a. 5 cm. b. 10 cm. c. 15 cm. d. 20 cm.
4. The ratio between final and initial speed for moving body with accelerating motion ....
   a. more than one. b. less than one. c. equal to one. d. equal zero.
5. Which of the following graphs represents object moves with constant speed : ....

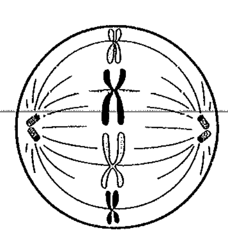


B Compare between each of the following :

1. Distance and displacement (as in type of physical quantity).
2. Crossing star theory and modern theory (as in origin of the solar system).
3. Somatic cell and reproductive cell (as in number of produced cells when cell division takes place in each of them).

C Through your study the stages of mitotic division answer the following :

1. Name the phase that preceding this phase the figure.
2. In which phase the centromere of each chromosome is split lengthwise into two halves ?
3. In which phase the spindle fibers disappear ?
4. What the importance of interphase ?





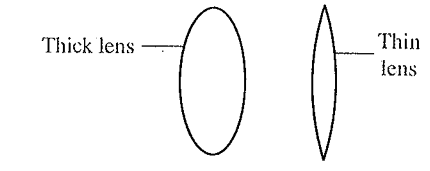
Question 2

A Correct the underline words :

1. Meiotic division aims to **growth of living organisms**.
2. Light rays is **passing** when falling on reflected surface.
3. The old stars are gather in the **edges** of the galaxy.
4. The word ambulance is written on ambulance cars **minimized**.
5. Number of chromosomes in an ovum cell containing **double** number of chromosomes in the one of liver cells.

B Mention the following :

1. Theory that explain origin of universe.
2. What is meant by the average speed of moving car 70 Km/h
3. **In the opposite figure :**
   Which one of these lenses has largest focal length ?



C If an object moves from rest regularly until its speed reaches to 12 m/sec after 2 sec from the start of moving so :

1. The change of speed through 2 sec = ... m/sec.
2. Acceleration = ... m/sec^2.

Question 3

A Complete the following with suitable words :

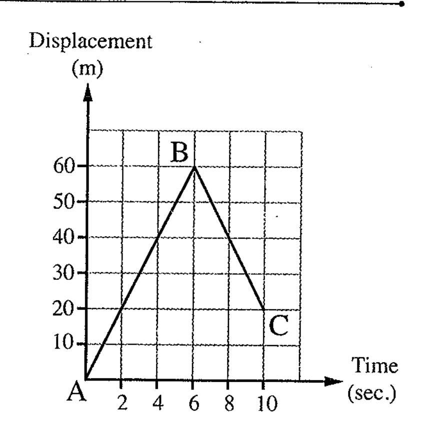
1. From the multicellular organisms that reproduce by budding is ....
2. .... reproduction doesn't required neither special systems nor structures in the living organisms.
3. .... are used instead of medical glasses to treat vision defects.
4. When the object is placed at .... of the convex lense, there is no image will be formed.
5. The moving car with 50 Km/h in constant direction its speed appears at 110 Km/h related to observer moves with 60 Km/h in .... direction of the car motion.

B What would happen in the following cases ... ?

1. Light ray that falls passing through center of curvature of the mirror.
2. A plane mirror is placed at the left side of the drivers instead of the convex mirror.
3. The parts of the inner chromatids are exchanged in the first prophase.

C In the opposite figure, that represents the movement of an object from point (A) to point (C) passing by point (B), Calculate the following :

1. Speed.
2. Velocity.





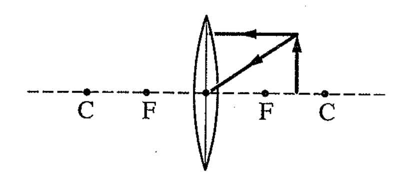
A Write the scientific term :

1. Chemically consists of DNA and protein.
2. Change of object position as time passes according to the location of another object.
3. A physical quantity that represents change in the object speed in unit time.
4. A method used by physicists to predict the mathematical relation between physical quantities.
5. It containing genetic materials from both parents and during growth it gives new individuals carries the traits of both parents.

B Give reasons for :

1. It's hard to measure the regular speed of a car practically.
2. The Sun escaped from the gravity of the huge star in the crossing star theory.
3. The number of chromosomes is constant in the same species which reproduce sexually.

C Transfer the following drawing to your answer sheet, then complete the direction of rays, then mention the properties of formed image.



17 El-Minia Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. Amoeba reproduce by ....
   a. binary fission. b. gametes. c. regeneration. d. buding.
2. Scientists believe that the matter of the universe was a .... ball of high pressure and high temperature.
   a. liquid b. solid c. gaseous d. no correct answer



3. When an object is placed between the focus of a convex lens and its center of curvature, the formed image will be ....

a. real, inverted and diminished.
b. real, inverted and magnified.
c. virtual, erect and magnified.
d. virtual, erect and diminished.

B Mention the name of the scientist who :

1. Put the nebular assumption theory about the evolution of the solar system.
2. Discovered a way to use Nano-molecules of gold to detect the cancer.
3. Used the way of concentrating the Sun rays to destroyed the Roman fleet in 212 B.C.

C In a race, a runner moves at a regular speed of 10m/sec. from the start of the race to the fifth second and there was a car that moves beside him, the speed of the car increases from zero to 25 m/sec. in 5 seconds also.

(a) Draw a graph (speed - time) and record on it.

(1) the movement of the runner.
(2) the movement of the car.

(b) Use the previous graph to calculate :

(1) the distance covered by the runner.
(2) the time in which the speed of the runner is equal to the speed of the car.

Question 2

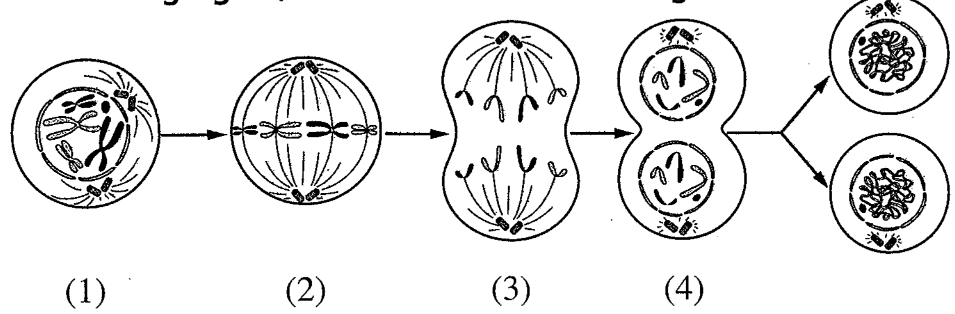
A Write the scientific term of the following :

1. Fibers extend between the two poles of the cell in prophase.
2. The change in the position of a body by the time related to the position of another body.
3. The image that cannot be received on the screen.
4. A theory assumed that the solar system was originally a big star which is the Sun.

B Mention the importance for the following :

1. A convex mirror is put at the left side of the driver of the car.
2. The direction of the wind affects the velocity of aircraft (plans).

C Look at the following figure, then answer the following :



(1) (2) (3) (4)

1. What is the kind of cell division in this figure ?
2. What is the name of phases number (2) and (3).
3. What will disappear in phase number (1).

Question 3

A Give reasons for :

1. In short-sightedness, the retina is far from the eye lens.
2. The importance of interphase in the cellular division.
3. The object which moves at regular speed, its acceleration equals zero.
4. The constancy of the planets in their orbits around the Sun.

B What happens when ... ?

1. If the liver gets injured or a part of it is cut.
2. A light ray passes through the optical center of the lens.

C Two trains move parallel to each other but in opposite direction the speed of the first train 65 km/h. and the speed of the second train is 85 km./h. Calculate the speed of the first train that observed by passengers in the second train.

Question 4

A Correct the underlined words :

1. **The force** is the length of the shortest straight line between two position.
2. It is a cell produced due to fertilization called **tetrad**.
3. **The lion** is considered one of the fastest wild animals.
4. The chromosome chemically consists of nuclear acid called DNA and **starch**.

B What is meant by ... ?

1. Crossing over phenomenon.
2. Vector physical quantities.

C Show by drawing the pass and the directions of rays to an object in front of a concave mirror at a distance greater than double focal length, knowing that its focal length is 0.025 m with determine the properties of the formed image.

18 Assiut Governorate

Answer the following questions :

Question 1

A Complete the following statements :

1. The crossing over phenomenon occurs in .... of first meiosis division.
2. The solar system consists of a number of .... planets revolve around the Sun.



3. The physical quantity that its magnitude and direction are necessary for identifying it is called ....

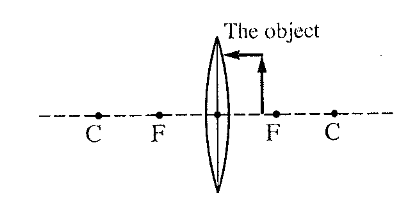
4. The combination of the male gamete and female gamete to form the zygote is known as ....

5. A concave mirror has a focal length of 20 cm , then the radius of curvature of its spherical surface equals ....

6. The space which contains all the galaxies, stars, planets, moons, living organisms and everything is called ....

B From the opposite figure :

Complete the figure to get an image for the object.
and mention its properties of the formed image ?



C What happens in the following cases ... ?

1. Increase the diameter of the eyeball from the normal state.
2. If the body cuts the same distance in half the time (to the speed of a body).

Question 2

A Correct the underlined words of the following :

1. The universe emerged from the particales of **oxygen** and hydrogen.
2. Form the properties of the image formed by the plane mirror is **real** , **inverted**, reversed and equal to the object.
3. The chromosome consists of two chromatids connected together **at the cytoplasm**.
4. **The irregular speed** is the value of displacement at a unit time and is a vector quantity.
5. Form speed measurement units are **meter / second^2** or kilometer/hour.
6. **The crossing star** is the largest star that can be seen from the surface of the Earth.

B What is meant by each of the following ... ?

1. Light reflection phenomenon.
2. A car moving at a uniform speed = 80 kms/hour.

C Mention one example for each of the following :

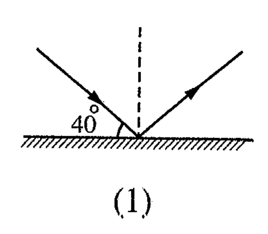
1. Scalar physical quantity.
2. An living organism reproduces by regeneration.

Question 3

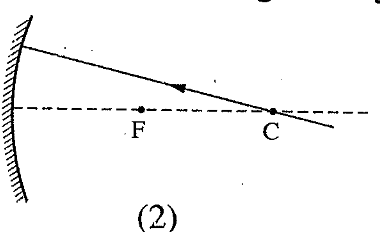
A **Write the scientific term for each of the following :**

1. The value of an object's speed relative to the observer.
2. A flat gaseous round disk that formed the solar system planets according to the perception of "laplace" scientist.
3. A cell division that occurs in the somatic cells and results in the growth of the living organism.
4. The actual length of the path that a moving object takes from the starting point of movement to the end point.
5. It is located in one of the spiral arms of the Milky Way on the edge of the galaxy.
6. A biological process where the living organism produces new individuals of the same kind and thus ensuring its continuity.

B **Calculate the value of the angle of reflection in the following two figures :**



(1)



(2)

C **Compare between each of the following :**

1. The positive acceleration and the negative acceleration according to (the concept of definition).
2. Real image and virtual image according to (the ability of receiving on a screen).

Question 4

A **Choose the correct answer :**

1. The founder of modern theory of the solar system is .... scientist.
   a. Moulten b. Chamberlain c. Fred Hoyle
2. The image formed by using a concave lens is ....
   a. real, enlarged, and inverted.
   b. virtual, smaller and inverted.
   c. virtual, smaller and upright.
3. At the end of this phase, the nucleolus and nuclear membrane disappear from the mitosis division ....
   a. prophase. b. metaphase. c. telophase.



4. If a light ray falls passing through the optical centre of the convex lens, it leaves the lens ....
   a. passing through the focus.
   b. parallel to the principal axis.
   c. without refraction.
5. The continuous expansion of the universe, is due to ....
   a. separation of galaxies.
   b. approaching of galaxies.
   c. equivalent to galaxies.

B Give reasons for each of the following :

1. A convex mirror is put at the left side and right of the driver of the car.
2. Occurrence of interphase before starting the mitosis cell division.

C A racer covered 50 meters northward within 30 seconds then 100 meters eastward within 60 seconds then 50 meters southward within 10 seconds, and then returns back to the start point within 40 seconds :

1. Calculate the total distance that the racer moved ?
2. What is the average speed of the racer ?
3. Calculate the displacement ?

19 Sohag Governorate

Answer the following questions :

Question 1

A Write a suitable word to complete the following statements :

1. The force is a .... physical quantity and the time is a .... physical quantity.
2. The solar system is located in one of the .... arms of .... on the edge of the galaxy.
3. Correcting long-sightedness by using .... lens and correcting short-sightedness by using .... lens.
4. Yeast fungus reproduces asexually by ...., while the amoeba reproduces asexually by ....

B A car moved from rest and its speed became 25 m/s in 10 seconds. Calculate its acceleration. With mention of its kind.

C What is meant by ... ?

1. The crossing over phenomenon.
2. The pole of the mirror.
3. Fertilization.

Question 2

A Correct the underlined words :

1. If the speed of a car is 72 km/h. means its speed is = **40** m/s.
2. In the Big Bang theory explains that the universe is formed by the cohesion of **Oxygen and Nitrogen** particles.
3. Chromosomes pairs arranged on the cell's equator in **anaphase 1**.
4. The (distance - time) graph for regular motion at uniform speed is represented by **curve line** passing through the origin point.

B Show by drawing the path of the light ray that forms the image of the object placed in front of a concave mirror at between the focus and the centre of curvature, What are the properties of the image being formed.

C What happens in the following cases ... ?

1. The incident light ray passing through the optical center of the convex lens.
2. The nebula gradually lost its heat in the theory of Laplace scientist.
3. When the bread mold fungus falls on a suitable environment.

Question 3

A Write the scientific term that correspond to each of the following :

1. Speed of the moving object relative to the observer which in resting or moving.
2. The solar system was a glowing gaseous sphere revolving around itself.
3. The line between the two centres of curvature of the lens passing by the optical centre of the lens.
4. Is the ability of animals to compensate their missing parts.
5. The phase which the cell prepares to division by the genetic material (DNA) duplicates.

B Give reasons for each the following :

1. No image is formed when the object is placed at the focus of a convex lens.
2. Mitosis is important for children, unlike the meiosis.
3. The perpendicular incident light ray on plane mirror reflects on itself.

C A racer covered 50 meters northward within 30 seconds, then 100 meters eastward within 60 seconds and then 50 meters southward within 10 seconds then stop. Calculate :

1. The average speed of the racer.
2. Velocity for racer.



Question 4

A Choose the correct answer :

1. The result of multiplying a speed of moving object by time ....
   a. acceleration. b. mass. c. distance. d. force.
2. .... began to form after 3000 million years after the Big Bang.
   a. galaxies. b. ancestral galaxies. c. the Sun. d. the Earth.
3. When the body covers equal distances in equal periods of time, the speed of the body is ....
   a. increases. b. decreases. c. irregular speed. d. uniform speed.
4. If the length of the radius of curvature of concave mirror 20 cm, then the focal length of the mirror equals ....
   a. 5 b. 10 c. 15 d. 20

B Compare between :

1. Nebular assumption and the modern theory (in terms of origin of the solar system).
2. Real image and virtual image (in terms of the possibility be formed on a screen).
3. Long-sighted person and short-sighted person (in terms of the place of the image formed).

C If the number of chromosomes in a human pancreas cell is 23 pairs, then what is the number of chromosomes in the following cells.

1. Skin cell. 2. Sperm. 3. Fertilized egg.

20 Qena Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. .... image can be received on a screen.
2. The stars move in a fixed orbit around the center of the ....
3. The measuring unit of acceleration is ....
4. Asexual reproduction takes place by .... in the yeast fungus.
5. We use .... lens to obtain a virtual and magnified image.

B What is meant by ... ?

1. The secondary axis of the mirror.
2. The crossing over phenomenon.
3. Nebula.

C Two cars move in straight line, the car (A) moves with speed 20 m/s, while the car (B) moves with speed 30 m/s. Calculate the distance covered by each car after one minute.

Question 2

A Choose the correct answer :

1. The Milky Way galaxy took its disc form after about .... million years after the Big Bang.
   a. 1000 b. 3000 c. 5000 d. 10000
2. From the examples of the vector physical quantities is ....
   a. time. b. force. c. mass. d. length.
3. The optical piece which forms an image that inverted and equal to the object is ....
   a. concave lens. b. concave mirror. c. convex mirror. d. plane mirror.
4. The nucleolus disappears during the mitosis cell division in ....
   a. prophase. b. metaphase. c. anaphase. d. telophase.
5. (Distance - time) graph for an object moves at regular speed is represented by a straight line ....
   a. parallel to time axis. b. parallel to distance axis.
   c. passing through the origin point. d. (a) and (c) together.

B What is meant by each of the following ... ?

1. The radius of curvature of the face of a concave lens = 20 cm.
2. A car moves of regular speed 80 km/h.

C Compare between :

1. The crossing star theory and the modern theory (according the name of the scientist).
2. Short-sightedness and long-sightedness (according to reasons of each).
3. Somatic cells and gametes (according to number of chromosomes).

Question 3

A Put (✓) or (×) in front of the following sentences :

1. The universe emerged from the particles of hydrogen and helium. ( )
2. The convex lens is thick at the center and less thick at the tips. ( )



3. The simplest type of motion is the motion in a curved path. ( )
4. A person moves 40 metres northward then returned 20 metres southward, so his displacement is 60 metres northward . ( )
5. Each group of stars is gathered in the solar system. ( )
6. A car covers 500 meters in 25 minutes, so its speed equals 20 m/sec. ( )

B What happen in the following cases ... ?

1. An object is put at the focus of a convex lens.
2. The starfish misses one of its arms and it contains a part of its central disk.

C Mention one use (or importance) for each :

1. Mitosis division.
2. The convex mirror is placed in the left side of the car driver.

Question 4

A Write the scientific term for each of the following sentences :

1. The combination of a male gamete and female gamete to form a zygote.
2. The speed of moving object relative to the observer.
3. The space which contains all the galaxies, stars, planets and living organisms.
4. The displacement covered through a unit time .
5. The point of connection of two chromatids of the chromosome together.

B Give reasons for :

1. The word ambulance is written in a converted (laterally inverted) way on the ambulance car.
2. The continuos expansion of space.
3. The moving cars cannot move inside crowded town all the time by uniform (regular) speed.

C An object is put at a distance of 10 cm from a concave mirror, its focal is 4 cm :

1. Draw a diagram to show the path of the rays falling on the mirror and the path of the rays that are reflected from it.
2. Mention the properties of the formed image.



21 Luxor Governorate

Answer the following questions :

Question 1

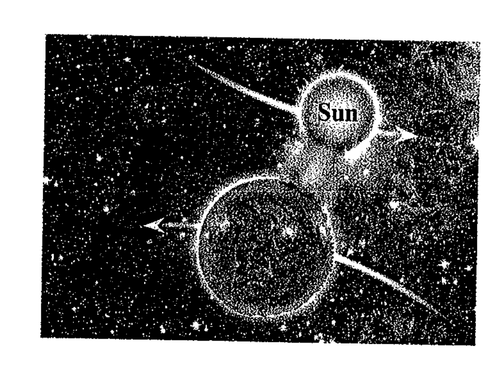
A Choose the correct answer :

1. The source of genetic variation is the .... reproduction.
   a. budding b. vegetative. c. sexual. d. regeneration.
2. A body of length 4 cm is placed at a distance of 8 cm from a convex mirror, so the length of the formed image becomes ....
   a. 16 cm. b. 8 cm. c. 4 cm. d. less than 4 cm.
3. In case of motion that is described as movement at irregular speed, it is useful to refer to another term which is the .... speed.
   a. uniform. b. scalar. c. vector. d. average.
4. If a person was putting a pen in his left pocket, then the formed image of the pen on a plane mirror will be on the .... side as it is ....
   a. left – reversed b. right – upright c. right – reversed d. left – virtual

B What is meant by ... ?

1. The distance covered by an object is changed by 2 m each second.
2. The combination of male gamete with female gamete to form a zygote.
3. The focal length of a concave lens is 7 cm.

C In the opposite figure, mention :



1. The name of the theory.
2. The effect of the attraction force on the gaseous line that extends from the Sun ?
3. The number of the galaxies in the universe.

Question 2

A Complete the following sentences :

1. The straight distance covered by the object in a certain direction is called ....
2. The .... telescope is from the space telescopes.
3. The spindle fibers are formed during the cell division in ....
4. The double of the distance between the optical center of a lens and its focus = ...



B **Give reasons for :**

1. The continuous expansion of the universe.
2. The technic of discovering the cancer cells by using the Nano-molecules of gold depend on using special protein.
3. No image is formed when the object is put in the focus of a convex lens.

C **An object moves with a uniform acceleration in a fixed direction, its speed reaches 3.6 km/h after 5 second, then after another 11 seconds, its speed reaches 1.3 m/s calculate :**

1. The acceleration of the moving object.
2. The initial speed of this object (by km/h).

Question 3

A **Write the scientific term for each of the following :**

1. The straight line joining between the two centers of curvature of the lens.
2. A type of asexual reproduction that takes place in plants' vegetative organs without the need of seeds.
3. The result of multiplying half the speed of a body with double of the time.
4. A theory based on an astronomical phenomenon in which a star was glowing for a short time, and then its glowing disappears gradually.

B **What happens when ... ?**

1. The centrosome disappears from the animal cell.
2. An object is put at distance equal to the double of the focal length of a convex lens.
3. The nebula loses its heat in the assumption of Laplace.

C **A moving car (A) in straight line measures the relative speed of a car (B) which was in the opposite direction, it found that the relative speed of the car (B) was 140 km/h and when the car (A) reduces its speed to the half, it found that the relative speed of the car (B) becomes 100 km/h, calculate the real speed of the two cars ?**

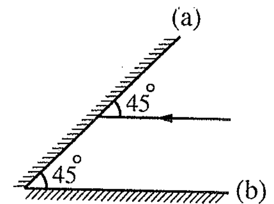
Question 4

A **Correct the underlined words in the following :**

1. When the object covers equal distance at equal periods of time, this means that the object move with **a negative** acceleration.
2. the solar system is located in one of the **circular** arms of the Milky Way galaxy.
3. When putting a body on a distance of 16 cm from a concave mirror its focal length is 12 cm, then the image formed will be **virtual upright** and magnified image.
4. Pilots take in consideration the **uniform speed** of the wind.

B From the opposite figure answer :

Complete the drawing and calculate the angle of incidence from the mirror (a) on the mirror (b) and mention the reason ?



C 1. Compare between : The long-sightedness and short-sightedness in the term of the reasons and the treatment ?

2. If the number of chromosomes in a pancreatic cell was 23 pair, so what is the number of chromosomes in :

(a) A skin cell. (b) A fertilized egg cell.



22 Aswan Governorate

Answer the following questions :



Question 1

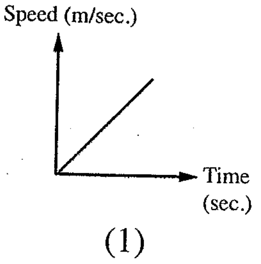
A Complete the following sentences :

1. .... is defined as the covered distance within a unit time.
2. The Sun and surrounding planets revolve around the centre of ....
3. Asexual reproduction in the bread mould happens by ....
4. The distance between the focus of the concave mirror and its pole is called ....

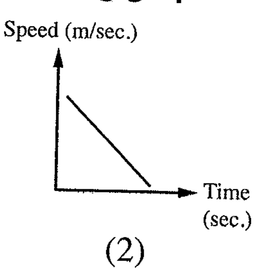
B What happens in the following ... ?

1. The parts of the inner chromatids are exchanged in the first prophase.
2. A light ray incident by an angle 45° on a plane mirror.

C Describe the motion of the body in each of the following graph :



(1)



(2)

Question 2

A Choose the correct answer :

1. The incident light ray passing through the focus of concave mirror ....
   a. refracts parallel to the principal axis.
   b. refracts passing through the center of curvature.
   c. reflects parallel to the principal axis.
   d. reflects passing through the center of curvature.



2. The parental individual disappears when the reproduction occurs in the ....

a. bacteria. b. yeast. c. bread mould. d. all the previous.

3. The concept of the body movement means ....

a. constancy of its position with the change in the time.

b. the change in its position with the time.

c. its speed. d. its acceleration.

4. The scientist who establish the modern theory of the solar system is ....

a. Chamberlain. b. Moulten. c. Fred Hoyle. d. Laplace.

B Give reasons for :

1. The distance is a scalar physical quantity while the displacement is a vector quantity.
2. Cellular division begins with interphase.

C What is meant by ... ?

1. Uniform speed.
2. The pole of the spherical mirror.

Question 3

A Write the scientific term :

1. The straight line joining the two centers of curvature of the lens.
2. The ability of some animals to compensate the missing parts by reproduction.
3. The speed of the moving object relative to the observer.
4. The gaseous round disk that formed the planets of the solar system.

B Compare between each of the following :

1. Long-sightedness and short-sightedness. (according to the position of the formed image)
2. Sexual reproduction and asexual reproduction. (according to the genetic traits of the resulted offspring)

C Draw a path of light rays that illustrate the formed image of object is placed at a distance more than double of the focal length in case of the convex lens, then mention the properties of the formed image.

Question 4

A Correct the underlined words :

1. The solar system contains many **stars**.
2. **Euglena** reproduces asexually by budding.





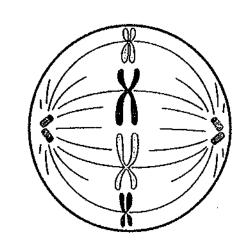
3. **The focus** is a point inside the lens, the principal axis passes by it.

4. Velocity = $\frac{\textbf{distance}}{\text{total time}}$

B **A racer covered 50 meters northward within 30 seconds then 100 meters eastward within 60 seconds then 50 meters southward within 20 seconds and then returns back to the start point within 40 seconds :**

1. Calculate the total distance that the racer moved ?
2. What is the average speed of the racer ?
3. What is the displacement ?

C **The opposite diagram represents a phase in mitotic division :**



1. What is the name of this phase ?
2. What is the changes happens in this phase ?

23 The New Valley Governorate

Answer the following questions :

Question 1

A **Choose the correct answer :**

1. When the object covers equal distances at unequal periods of time, it moves with a .... speed.

   a. uniform b. negative c. positive d. non-uniform

2. The car (A) moves at 80 km/h and the car (B) moves at 40 km/h in the same direction. Therefore the speed of the car (A) relative to the observer in the car (B) equals .... km/h.

   a. 40 b. 80 c. 30 d. 120

3. The number of chromosomes in a gamete is .... the number of chromosomes in the original cell.

   a. equal to b. a half of c. a quarter of d. a double of

4. Our solar system is located in one of the .... arms of the Milky Way galaxy.

   a. spiral b. oval c. straight d. circular

B **What happens when ... ?**

1. Sporangia of bread mould fungus rupture.
2. The diameter of the eyeball elongates.
3. Initial speed of a moving object is more than the final speed (according to the acceleration of its movement).



C **An object is placed at the distance of 15 centimeters from the spherical mirror with a diameter of 40 cm. Then an image which could be received on a screen is formed.**

1. What is the type of the mirror ?
2. Determine the position and properties of the image formed by the mirror.

Question 2

A **Complete the following sentences with the correct answer :**

1. Laplace's theory assumed that nebula lost its heat, so its size .... and its revolving speed around .... increased.
2. The focal length of the convex lens equals the distance between .... and ....
3. The atomic particles merged together producing .... gas and .... gas which over millions of years produced galaxies, stars and the universe.
4. Distance is one of the .... physical quantities but force is one of the .... physical quantities.

B **Mention the name of the scientist who used the way of the collection of the Sun rays against the Roman fleet and mention the name of the optical piece used.**

C **A car moves from rest and its speed reaches 25 m/sec in 10 seconds. Calculate the acceleration with which the car moved.**

Question 3

A **Write the scientific term for each of the following :**

1. The group of galaxies which revolve together in the universe space due to gravity.
2. The length of the shortest straight line between the primary position of movement and the final position of movement.
3. A disease which infects the eye and causes vision defects because the eye lens becomes opaque.
4. The process of genes exchanging between the two inner chromatids of the tetrad.

B **If you know that there are two types of cell division and one of them contains the following phases :**

(Anaphase – Metaphase – Telophase – Prophase)

1. Arrange these phases according to the priority of occurrence.
2. What is the type of the division which contains these phases ?

C Give reasons for each of the following :

1. A convex mirror is placed on the right and on the left of a car driver.
2. It is impossible to obtain a real image by using a concave lens.
3. The genetic material duplicates in the interphase before entering into the mitosis division.

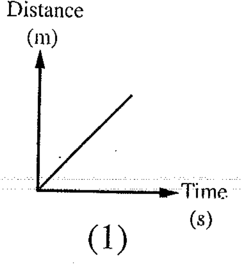
Question 4

A Rewrite the following sentences after correcting the underlined mistakes :

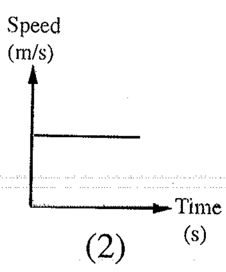
1. <u>Gene</u> is a site in which the two homologous chromatids in the chromosome connect.
2. If the angle between the incident ray and the reflected ray from a plane mirror is 140°, the angle of incidence is <u>40°</u>.
3. <u>Pollination</u> is the combination of the female gamete and the male gamete to form a zygote.
4. If the uniform speed of a car is 72 kilometers/hour, this means that its speed is <u>18 meters/second</u>.



B Describe the movement of an object which is represented by the following graphs :



(1)



(2)

C Mention the assumptions of the crossing star theory which clarify the evolution of the solar system.

24 South Sinai Governorate

Answer the following questions :

Question 1

A Choose the correct answer :

1. Measuring unit of speed is ....

   a. meter.sec. b. meter/sec. c. meter/sec^2 d. meter.

2. The short-sighted person needs a medical eye glasses with .... lenses.

   a. convex b. concave c. plane d. convex and concave

3. Number of chromosomes in female gamete equal .... the number of chromosomes in the original cell.

   a. quarter b. half c. same d. double

4. When the object covers equal distances at unequal of periods of time, the speed is called ....

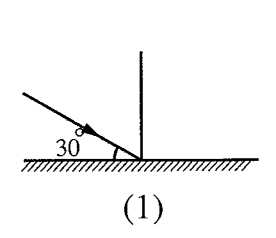
   a. uniform. b. negative. c. positive. d. non-uniform.

5. The filamentous fibers called a spindle fibers is composed in ....

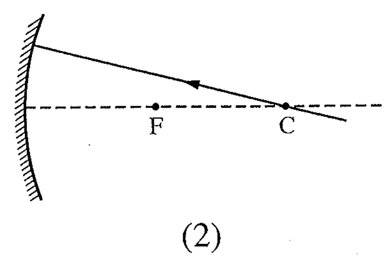
   a. telophase. b. interphase. c. prophase. d. metaphase.

B **A car starts moving from rest, the speed of the car increase to 25 m/sec after 10 second. Calculate the acceleration of this car.**

C **Calculate the angle of reflection in each of the following figures :**



(1)



(2)

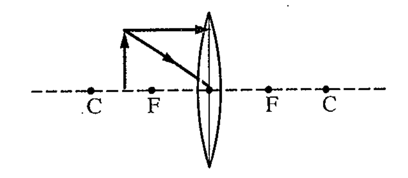
Question 2

A **Write the scientific term :**

1. The value of an object's speed relative to the observer.
2. Located in one of the spiral arms of the Milky Way galaxy.
3. Ability of animals to compensate their missing parts.
4. A cell division that occurs in the somatic cells and results in the growth of the living organism.
5. A phase in which some important vital processes occur to prepare the cell for division and the genetic material in the cell is doubled.

B **Complete the following drawing :**

Then mention the properties of formed image.



C **Mention one example for the following :**

1. Vector physical quantity.
2. Living organism reproduce by spores.

Question 3

A **Complete the following sentences :**

1. The radius of curvature of the convex mirror equals .... of its focal length.
2. The crossing over phenomenon occurs in the .... of .... division.



3. The physical quantities that has magnitude only to identify is ....
4. The modern theory of the world belongs to .... scientist.

B **Give reasons for the following :**

1. It is hard to measure regular speed practically.
2. The parent disappear during binary fission.

C **Mention one use for contact lenses.**

Question 4

A **Put (✓) or (×) in front of the following sentences :**

1. Each lens has one center of curvature. ( )
2. Meiosis division aims to the production of the gametes. ( )
3. Displacement is the value of change of an object's speed in one second. ( )
4. There are a concave mirror at the left of the car driver. ( )
5. The expansion of the universe and the merging of atomic particles creating oxygen and nitrogen. ( )

B **Complete the spaces in the table :**

Speed (m/s)	Distance (m)	Time (sec)
.... (1)	100	5
5	.... (2)	10
8	96	.... (3) ....

C **What happens when ... ?**

1. The nebula gradually lost its heat according to Laplace.
2. The male gamete combines with female gamete.

25 North Sinia Governorate

Answer the following questions :

Question 1

A **Complete the following statements :**

1. If a car covers a distance = 72 km within a time = 1 hour, the car's speed during this time is .... m/s.



2. Distance is considered as .... physical quantity and force is considered as .... physical quantity.
3. The vision defect which is due to a shortness in the radius of the ball is called ....
4. The solar system is located in one of the spiral arms of .... on the edge of the galaxy.
5. The chromosome chemically consists of nuclear acid called .... and ....
6. When the male gamete fuses with the female gamete, ... is formed.

B Show by drawing only the formation of a virtual, upright and magnified image by using the spherical mirror.

Question 2


A Write the scientific term for each of the following :

1. The speed of a moving body relative to the observer.
2. The total distance that a moving object covers divided by the total time taken to cover this distance.
3. A point inside the lens lies on the principal axis in the mid distance between its faces.
4. It contains all the galaxies, stars, planets and living organisms.
5. A phase in which some important vital processes occure to prepare the cell for division and the genetic material in the cell is doubled.

B Mention the properties of the formed image by the concave lens.

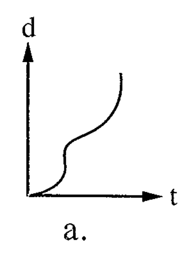
C Compare between somatic cells and reproductive cells in accordance to :

1. Number. of chromosomes. 2. No. of produced cell. 3. Type of division.

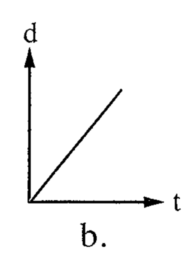
Question 3


A Choose the correct answer :

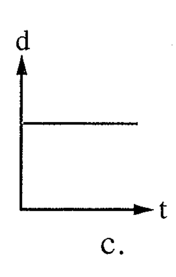
1. The concept of the body movement means : ....
   a. Constancy of its position with the change in the time. b. Its speed.
   c. The change in its position with the time. d. Its acceleration.
2. Which of the following graphs represents the movement of an object at constant speed ....



a.



b.



c.

3. The shortest distance covered by a body in certain direction is called ....
   a. the distance. b. the displacement. c. the acceleration. d. the speed.
4. A light ray that falls on a plane mirror as in the figure it reflected where the reflection angle equals ....
   a. 30° b. 60°
   c. 90° d. 180°

   30°

5. The source of genetic variation is the .... reproduction.
   a. budding b. vegetative c. sexual d. asexual
6. If a person stands at 3 m from a plane mirror, so the distance between the person and his image is ....
   a. 3 m. b. 6 m. c. 9 m. d. 12 m.

B What is meant by each of the following ... ?

1. A moving car covers a distance of 100 kilometers in two hours.
2. The regeneration.

Question 4

A Give reasons for :

1. The mitosis division is important for children.
2. The velocity is a vector physical quantity.

B Show by drawing only the formation of the image equal to the object by means of a convex lens.

C A car moves with speed 80 m/s . If the driver used the brakes to decrease the speed, so it decreased by 2 m/s^2. Calculate its speed after 12 seconds from using the brakes ?

D What happens when ... ?

The nebula loses its temperature in Laplace's opinion.

26 Red Sea Governorate

Answer the following questions :

Question 1

A Complete the following statements :

1. Path of motion in one direction may be .... or .... or the two motion together.
2. The chromosome consists from .... connected at ....



3. The focal length for the convex lens equal to the distance between .... and ....
4. The force is consider .... physical quantity and the mass is .... physical quantity.
5. The fertilization process is the combination between .... and .... to form a zygote when it grows, it gives a new offspring.

B What happens when ... ?

1. A light ray pass in the optical centre of lens.
2. A cloud of gas remained and subject to cooling and contraction processes as modern theory.
3. Putting the yeast fungi in a warm sugar solution.

C What mean with each of the following ... ?

1. The nebula.
2. The distance which an object travels in the east direction equal 30 metre.

Question 2

A Write the scientific term for each of the following :

1. The point that is in the middle of the reflecting surface of the spherical mirror.
2. A network of filamentous fibers, extend between the two poles of the cell in the prophase.
3. A vision defects leads to formation of image behind the eye retina.
4. The result of multiplying a speed of a moving object by time.
5. It contains all galaxies, stars, planets and living organism.

B Write the function of :

1. Speedometers is in airplanes and cars.
2. DNA nuclear acid.

C An object moving in straight line, the table show the distances and times what is the object move.

Distance (m)	10	20	30	40	50
Time (sec.)	5	10	15	20	25

1. Draw the graph (distance - time).
2. Calculate the speed of moving object.

Question 3

A Give reason for each of the following :

1. Asexual reproduction produce new individuals identical to the parents.
2. The incident light ray perpendicular on reflecting surface reflect on itself.



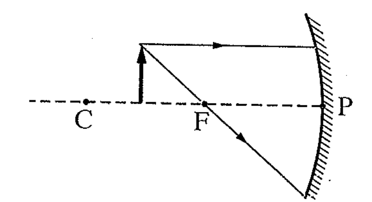


3. A moving car with speed seems constant to the observer in anther moving car in the same direction, and with the same speed.
4. The mitosis division very important for the children.

B Correct the underlined words :

1. The **crossing star** is a big star can seen from the Earth.
2. The **real** image cannot receive on the screen.
3. The meiotic division in the **somatic** cells.
4. The number of chromosome in plant stem equal **quarter** its number in the pollen grains for the same plant.

C Transfer the drawing to your answer sheet, then answer :

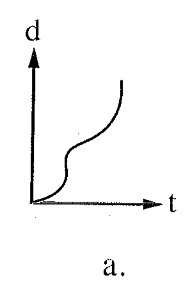


1. Complete the light rays to form the image of the object.
2. The properties of the formed image.

Question 4

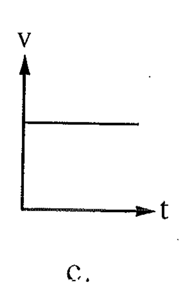
A Choose the correct answer :

1. The .... found in one spiral arm of Milky Way galaxy.
   a. galaxy b. universe c. solar system
2. The reproduction by spores accur in this living organisms except ....
   a. amoeba. b. bread mould. c. mushroom.
3. A convex lens with focal length 5 cm, put a body at a distance more than the double of its focal length, the image formed is real, inverted and small at a distance .... cm.
   a. 5 b. 8 c. 10
4. The graph .... is the object move with acceleration equal zero.



a.

b.



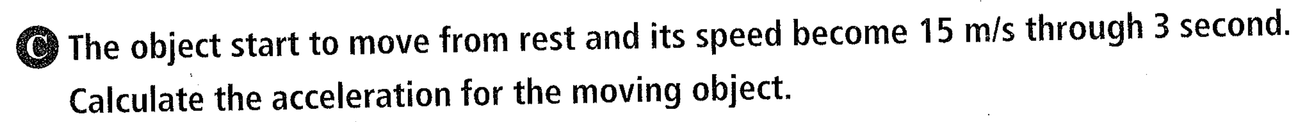
c.

5. The light ray reflect in the same medium when meeting the reflecting surface this is ....
   a. reflection phenomenon. b. refraction phenomenon. c. (a) and (b) together.



B This shape is a vital phenomenon.

1. Write its name.
2. The name of the phase where this phenomenon accrue.
3. What is the important of this phenomenon.



C The object start to move from rest and its speed become 15 m/s through 3 second. Calculate the acceleration for the moving object.



27 Matrouh Governorate

Answer the following questions :

Question  1

A Choose the correct answer :

1. Bread mould fungus reproduces by ....
   a. budding. b. spore propagation. c. binary fission. d. regeneration.
2. A car covers 180 meters in two seconds, so its speed = ...
   a. 90 m/sec. b. 180 km/h. c. 25 km/h. d. 45 km/h.
3. The image of the body formed by plane mirror is always ....
   a. virtual – enlarged – erect. b. real – diminished – inverted.
   c. real – equal – inverted. d. virtual – equal – erect.
4. According to the Big Bang theory, within minutes from the origin of the universe, the ratio of hydrogen to helium is ....
   a. 75 : 1 b. 25 : 1 c. 3 : 1 d. 1 : 3

B Compare between :

1. Long-sightedness and short-sightedness. (The type of lens used in treatment)
2. Metaphase of mitosis and metaphase of meiosis (I). (With drawing).

C A car moves at a speed of 60 m/sec. If the driver used the brakes to decrease the speed by 3 m/s^2, calculate the time after which the car stops.

Question  2

A Write the scientific term :

1. The ability of some animals to compensate their missing parts.
2. The point inside the lens on the principle axis in the mid distance between its faces.

3. The rate of change of displacement.
4. The value of an object speed relative to the observer.
5. The point of collection of the refracted light rays which is produced when the light rays fall parallel to the principal axis of a lens.

B A concave mirror with a focal length of 6 cm. and an object is placed at a distance of 8 cm from the mirror, Determine the position of the formed image and its characteristic by drawing and direction of rays.

C What is meant by ... ?

1. Crossing over phenomenon.
2. Nebula.

Question 3

A Put (✓) or (×), Then correct the wrong one :

1. The spindle fibers are formed in the plant cell from the centrosome. ( )
2. A spherical mirror whose diameter is 12 cm its focus lies at a distance 6 cm from the pole. ( )
3. Somatic cells are divided by meiosis which lead to the growth of living organisms and compensation of damaged cells. ( )
4. According to modern theory the star exploded due to huge nuclear reactions. ( )
5. When an object moves at an acceleration equals zero this means that the object moves at a uniform speed. ( )

B Give reasons for :

1. Sexual reproduction is source of genetic variation.
2. The continuous expansion of universe.
3. Some persons have short-sightedness.

C When do following values equal zero :

1. An angle of incidence of light ray on a plane mirror.
2. The displacement of a moving object.

Question 4

A Complete the following statements :

1. According to modern theory the gaseous cloud subjected to .... and .... processes forming the matter of planets.
2. Asexual reproduction takes place by .... in yeast fungus and by .... in bacteria.



3. If a car moves at a speed of 70 km/h and it seems to an observer at a speed 120 km/h therefore the speed of the moving observer is .... km/h and in the .... direction.
4. The incident light ray passing through the centre of curvature of the mirror reflects with an angle = ...
5. Starfish reproduces asexually by ....

B What happens when ... ?

1. When the distance between a planet and the Sun increases.
2. The length of the eye radius is longer than normal.
3. The nebula loses its temperature according to Laplace's theory.

C Mention the importance of each of the following :

1. Gravity in solar system.
2. Light year.
3. The gaseous line in the crossing star theory.



Final Examinations 2018





1 Cairo Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. The Sun and the surrounding planets revolve around the centre of .... galaxy.
2. Mitosis occurs in the .... cells of living organisms.
3. Distance is a .... physical quantity, while force is a .... physical quantity.
4. The scientist who established the modern theory about the evolution of the solar system is ....

B What is meant by each of the following ... ?

1. Angle of reflection.
2. Uniform acceleration.
3. The pole of a mirror.

C An object moves in a straight line northward at a speed of 5 m/sec. and its speed reaches 20 m/sec through 3 seconds.

Calculate the following :

1. The velocity after 3 seconds.
2. The acceleration of the moving object.

Question 2

A Choose the correct answer :

1. The crossing over phenomenon takes place at the end of ....
   a. prophase I. b. metaphase I. c. anaphase I. d. telophase I.
2. A body of length 4 cm is placed at a distance of 8 cm from a convex mirror, so the length of the formed image becomes ....
   a. 16 cm. b. 8 cm. c. 4 cm. d. less than 4 cm.
3. The ability of some animals to compensate their missing parts is called the ....
   a. budding. b. regeneration. c. sporogony. d. sexual reproduction.
4. The line between the centres of curvature of the lens passing by the optical centre of the lens is called the ....
   a. focal length. b. principal axis. c. secondary axis. d. radius of curvature.



5. The scientists believe that the universe emerged from a massive explosion and it is in ....

a. continues contraction.
b. contraction then expansion.
c. expansion then contraction.
d. continues expansion.

B **Explain by drawing :**

The properties of the image formed by a convex lens when an object is placed between the focus and double of the focal length.

C **Give reasons for :**

1. Displacement is a vector quantity.
2. The focal length of a concave mirror can be determined by knowing its radius of curvature.

Question 3

A **Rewrite the following statements after correcting the underlined words :**

1. When a moving car covers equal distances at equal periods of time, so it moves with a **relative** speed.
2. The solar system includes **nine** planets revolve around the Sun.
3. The chromosome consists of two chromatids connected at the **cytoplasm**.
4. Nebular theory suggested that the solar system originated from a glowing gaseous sphere revolving around **the Sun**.
5. The two gases which produced the galaxies, stars and universe over millions of years are helium and **nitrogen**.

B **What would happen in the following cases ... ?**

1. Absence of centrosome in the animal cell.
2. A light ray is incident passing through the optical centre of a convex lens.

C **Two race cars, the first car moves at a speed of 80 km/h, while the second car moves at a speed of 120 km/h, in the same direction. Mention the following :**

1. The relative speed of the first car relative to an observer standing on one side of the race road.
2. The relative speed of the second car relative to passenger in the first car.

Question 4

A **Write the scientific term for the following :**

1. The distance moved through a unit time.
2. The combination of the male gamete and female gamete to form a zygote.
3. The space which contains all the galaxies, stars, planets and living organisms.

4. The regular speed by which the object moves to cover equal distances at the same period of time.
5. An optical piece is thin at its centre and more thick at the tips and diverging light rays falling on it.
6. Asexual reproduction takes place in some plants without needing seeds but through their vegetative organs.

B Compare between the following :

1. Short-sightedness and long-sightedness (concerning : the correction of both).
2. Positive acceleration and negative acceleration (concerning : the definition).



2 Giza Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. The distance that a moving object covers within a unit time is known as ....
2. The incident light ray which is parallel to the principal axis of a concave mirror reflects passing through ....
3. The founder of the modern theory is the scientist ....
4. The scientists believe that the matter of the universe was a .... ball of high pressure and high temperature.

B What is meant by ... ?

1. Displacement of an object equals 50 metre eastward.
2. The distance between the principal focus of a spherical mirror and its pole = 20 cm.

C Compare between : Lenses and mirrors (concerning : the definition).

Question 2

A Choose the right answer :

1. If the speed of a car is 72 km/hour, this means that its speed equals .... m/s.
   a. 18 b. 20 c. 40
2. If an object is placed at a distance less than the focal length of a concave mirror, a virtual upright .... image is formed.
   a. diminished b. equal c. magnified

3. The ability of some living organisms (animals) to compensate their missing parts is known as ....
   a. budding. b. regeneration. c. sporogony.
4. The spindle filaments appear during cell division in ....
   a. telophase. b. interphase. c. prophase.

B Define each of the following :

1. The scalar physical quantity.
2. The crossing over phenomenon.

C A car moved from rest and its speed became 25 m/s. during 10 seconds. Calculate its acceleration.

Question 3

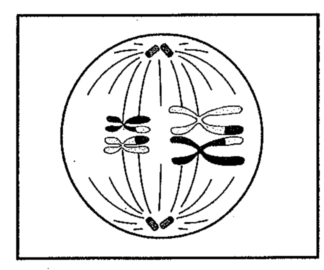
A Write the scientific term for each of the following :

1. The distance that a moving object covers divided by the total time taken to cover this distance.
2. The angle between the reflected light ray and the normal line at the point of incidence on the reflecting surface.
3. A group of stars that rotate together in cosmic space by the effect of gravity.
4. The point of connection of the two chromatids of the chromosome during the cell division.

B Give reasons for :

1. The continuous expansion of space.
2. The image formed by the convex mirror can't be received on a screen.

C The opposite figure represents one of meiotic division (meiosis) phases :



1. What is the name of this phase ?
2. Draw the phase next to this phase.



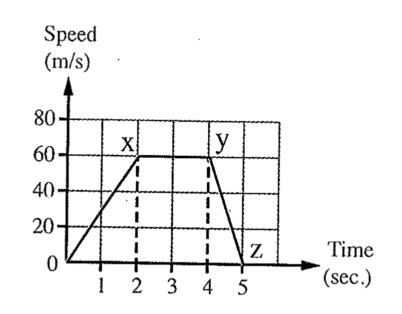
A Correct the underlined parts in the following :

1. The relative speed of a moving car to an observer at rest is **less than** the real speed.
2. If the angle between the reflected light ray and the reflecting surface is 40°, the angle of incidence equals **40°**.
3. The theory that explains the origin of the universe is **nebular theory**.
4. Reproduction by spore propagation occurs in **paramecium**.

B What are the results of ... ?

1. Less convexity of the eye lens surfaces.
2. Approaching of a huge star to the Sun according to the crossing star theory.

C From the opposite graph which represents the motion of a car :



1. The value of the maximum speed of the car equals .... m/s.
2. The kind of acceleration in part (yz) is ....

3 Alexandria Governorate

Answer the following questions :

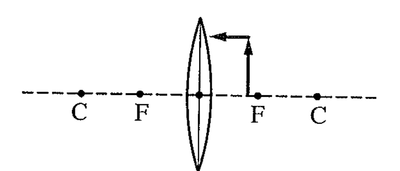
Question 1

A Complete the following sentences :

1. The atomic particles fused and formed .... gas and .... gas, which formed the galaxies, stars, and universe.
2. The long-sighted person needs glasses of .... lens.
3. Vegetative reproduction in plants happens by .... division.
4. Vector velocity = $\frac{..........}{\text{Total time}}$.



B Copy the opposite figure to your answer sheet, then complete the rays to get an image for the body and mention its properties.



C For a moving body when can we describe it as follow ... ?

1. Moves by the simplest type of movement.
2. Moves by irregular speed.

Question 2

A Write the scientific term :

1. Fusion of the male gamete and the female gamete to form the zygote.
2. The speed of an object relative to an observer.
3. The force that controls the orbits of the planets around the Sun according to the modern theory.

B Give reasons for :

1. The formed image by the convex mirror is always virtual.
2. Occurrence of interphase before starting the cell division.

C Mention only the tools that are used in the determination of the radius of curvature of a concave mirror, then illustrate the relation between the radius of curvature and the focal length.

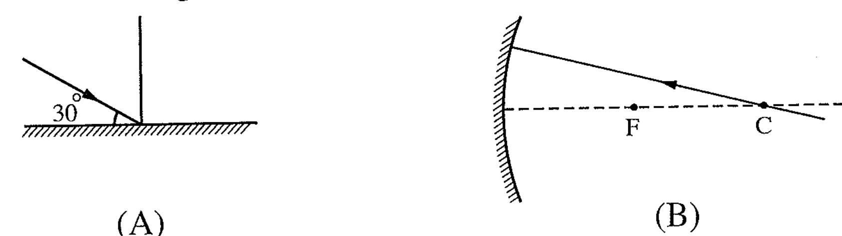
Question 

A Rewrite the following statements after correcting the underlined parts :

1. Meiosis happens in the **somatic cells**.
2. The formed image by the plane mirror is **real and inverted**.
3. Nebular theory suggested that the origin of the solar system was a flaming **solid mass** rotates around itself.

B In the following two figures :

What is the value of the angle of reflection of the incident rays in figures (A) and (B)?



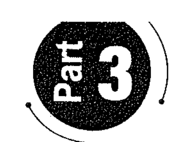
(A) (B)

C What is the importance of crossing over phenomenon in the sexual reproduction ?

Question 4

A Choose the right answer :

1. The image of the object that lies at the centre of curvature of a concave mirror is ....
   a. real, inverted and enlarged. b. real, upright and equal to the object.
   c. real, inverted and equal to the object. d. virtual, upright and equal to the object.
2. If the chromosomal number in the male gamete of an organism is 20 so, the chromosomal number in the liver cell equals ....
   a. 5 chromosomes. b. 10 chromosomes. c. 20 chromosomes. d. 40 chromosomes.
3. .... established the crossing star theory.
   a. Laplace b. Fred Hoyle c. Hubble d. Chamberlain
4. The centromere of each chromosome divides longitudinally and the spindle fibers contract in mitosis during ....
   a. prophase. b. metaphase. c. anaphase. d. telophase.





B Mention one example for each of the following :

1. Scalar physical quantity.
2. An organism reproduces by spores.

C A bike started movement from rest and its speed reached 5 m/sec. in 2.5 second, at the same time the speed of a car changed from 20 m/sec. to 45 m/sec., calculate the acceleration of each of them, then mention the type of acceleration in each of them.

4 El-Kalyoubia Governorate



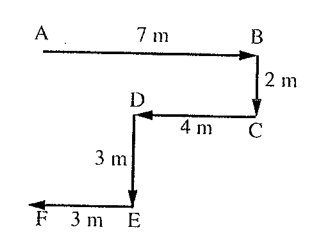
Answer the following questions :

Question 1

A Write the scientific term of the following sentences :

1. Specialized cells which produce gametes.
2. Changing the position of an object as the time passes according to a fixed point.
3. A point inside the lens that lies on the principal axis at mid distance between the faces of the lens.
4. Something that includes all galaxies, stars, planets and living organisms.
5. The speed of a moving body relative to a moving or a static observer.

B A body moves in the path (ABCDEF) as in the opposite figure. Calculate :



1. The distance that the body moved.
2. The displacement of the body.

C Give reasons for :

1. The force is a vector quantity.
2. When the object is placed at the focus of a convex lens, the image is not formed.
3. There are no new races of grapes, when they reproduce by vegetative reproduction.



Question 2

A Choose the correct answer :

1. The number of chromosomes in the gamete is .... the number of chromosomes in the original cell.

   a. equal to b. half c. quarter d. double

2. When the body covers equal distances at unequal periods of time, the speed will be ....
   a. regular. b. decelerated. c. accelerated. d. irregular.
3. If the distance between the two centres of curvature of the lens is 20 cm. , this means that the focal length is ....
   a. 5 cm. b. 10 cm. c. 15 cm. d. 20 cm.
4. All the following cells contain full copy of genetic material except ....
   a. spore. b. bud. c. zygote. d. pollen grain.
5. The point at the middle of the reflecting surface of a spherical mirror is called ....
   a. focus of mirror. b. pole of mirror.
   c. centre of curvature of mirror. d. face of curvature of mirror.

B **A student takes a time of 15 minutes to reach his school when he moves at an average speed (2 m/s). Calculate the total distance covered by the student when goes to school and returns back again to his starting point.**

C **The opposite figure shows a vital phenomenon :**
1. What is the name of this phenomenon ?
2. Mention the name of the phase in which this phenomenon occurs and mention the type of its division.
3. What is the importance of its occurrence ?

Question 3

A **Put (✓) or (×) in front of the following sentences :**
1. Attraction force of the Sun that controls the orbit of the planets around it is one of Laplace's assumptions. ( )
2. When the light ray falls by an angle of zero on the reflecting surface, so the reflected light ray will be perpendicular on the reflecting surface. ( )
3. When the body moves at a constant speed, so the acceleration will be regular. ( )
4. In the Big Bang theory, the universe is formed from gathering of oxygen and hydrogen particles. ( )
5. Asexual reproduction keeps the genetic structure of living organisms. ( )

B **Write the assumptions of crossing star theory for the origin of the solar system (4 assumptions only).**

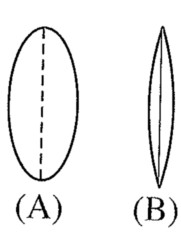
C **Determine the position of an object in front of a concave mirror if the formed image is :**
1. Real, inverted and magnified.
2. Virtual, erect and magnified.
3. Real, inverted and minimized.

Question 4

A What happens ... ?

1. When an injured liver or cutting a part of it.
2. To the displacement of a moving body when it returns back to its starting point.
3. To the speed of a body if it covers the same distance in half the time.
4. When rupturing sporangium in bread mould fungus.
5. To the distance between the image and the plane mirror when the body becomes closer to the mirror.

B In the opposite figure, two eye lenses for two eyes equal in eye diameter for two different persons. Which of them has short-sightedness and why ?



(A) (B)

C Compare between :

1. Principal axis of spherical mirror and lens (according to : the definition).
2. Positive acceleration and negative acceleration (according to : initial speed and final speed).
3. Crossing star theory and modern theory (according to : the founder).

5 El-Sharkia Governorate

Answer the following questions :

Question 1

A Complete the following sentences :

1. .... scientist who founder the nebular theory.
2. The spindle fibers are formed during the cell division in ....
3. .... are formed of groups of stars in the universe.
4. If a beam of parallel rays fall on the concave lens, and they parallel to the principal axis, so the rays pass through the concave lens .... as if they come from a point .... the lens.

B Define each of the following :

1. The optical centre of the lens. 2. The binary fission. 3. Contact lens.

C Represent the relation (speed - time) graphically :

If the car starts to move from rest (speed = zero) and after 1 second, its speed becomes 2 m/s, after another second, its speed increases to 5 m/s, then the driver had to use the brakes to slow down the car speed to 1 m/s, in the third second, and he stops completely after another second.



Question 2

A Choose the correct answer :

1. The uniform acceleration means that the object speed .... by equal values through equal periods of time.
   a. increases only　　b. decreases only
   c. increases or decreases　　d. doesn't change
2. From the scalar physical quantities is the ....
   a. acceleration.　　b. time.　　c. velocity.　　d. displacement.
3. The object moves at a constant (uniform) speed when ....
   a. it moves at a constant acceleration.　　b. it covers equal distances at unequal times.
   c. it covers equal distances at equal times.　　d. no correct answer.
4. A concave mirror with a focal length of 20 cm, and the object is placed at a distance of 50 cm from the mirror, the image is formed at a distance ....
   a. more than 40 cm.　　b. more than 20 cm and less than 40 cm.
   c. equals 20 cm.　　d. equals 60 cm.
5. The centromere of each chromosome is divided longitudinally, then the two chromatids are separated from each other in the ....
   a. prophase.　　b. metaphase.　　c. anaphase.　　d. telophase.

B Give reasons for :

1. The object that is placed at the focus of a convex lens has not an image.
2. The nebula lost its sphere form and became in a form of a flat rotating disk.
3. Sexual reproduction is a source of genetic variation.

C Compare with drawing only between :

The image which is formed when the object is placed at a distance less than the focal length of both of : Concave mirror and Convex lens.

Question 3

A Rewrite the following statements after correcting the underlined words :

1. The **incident light ray** is the light ray that bounces from the reflecting surface.
2. The Sun takes about **100 million years** to complete one rotation around the centre of the galaxy.
3. If the speedometer points to 72, this is equivalent to **15 m/s.**
4. In **convex** mirror, the image is inverted and equal to the object.
5. Many scientists believe that the universe emerged from a massive explosion **500 thousand years** ago.

B **What happens if ... ?**

1. Reproductive cells are divided by meiosis.
2. The initial speed of a moving body is greater than the final speed.
3. The combination of the male gamete and female gamete.

C **If an object started its movement from point (A) and covered a distance 30 metres northward within 30 seconds, then 60 metres eastward within 20 seconds, and then 30 metres southward within 10 seconds. Calculate :**

1. The total distance.
2. Average velocity, then mention its direction.



Question 4

A **Write the scientific term for each of the following :**

1. The speed of a moving object relative to a constant or a moving observer.
2. The rebounding of the light to the same side when it strikes a reflecting surface.
3. It is located in one of the spiral arms of the Milky Way galaxy on the edge of the galaxy.
4. A medical case as a result of the formation of the image behind the retina.
5. The space which contains all the galaxies, stars, planets, moons, living organisms and everything.

B 1. **What is meant by :** The focal length of a concave mirror = 10 cm.

2. **Mention the second law of light reflection.**
3. **What are the results based on :** The merge of the atomic particles together within minutes of the Big Bang.

C **Compare with drawing only between :**

Metaphase in first meiotic division and second meiotic division.